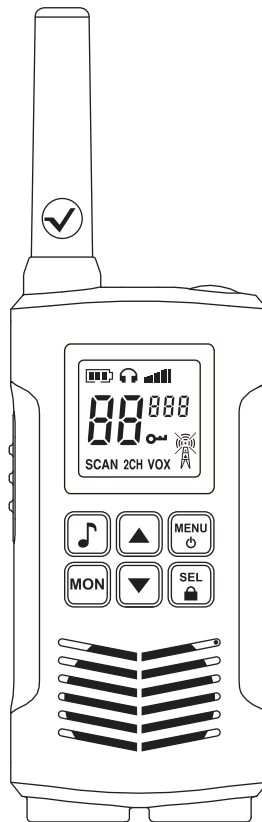




# User's Manual



**RT45**  
Two Way Radio

# To CUSTOMERS

Thank you very much for using our two-way radios.  
This product has a newly developed function menu and  
humanism operation design, making it easy to use. It will  
meet your requirement by the compact size and reasonable  
price.

## Package Contents

- 2 x RT45 Two Way Radio
- 2 x Belt Clip
- 1 x AC Adapter
- 6 x 650mAh AA NiMH Rechargeable Batteries
- 1 x RT45 User Manual

## Features and Specifications

22 Channel

121 Sub-Codes(38 CTCSS Codes&83 DCS Codes)

VOX Function

10 Selectable Call Tone Alerts

Backlit LCD Display

Headset jack for Optional Headset

Roger Beep

Room Monitor

Battery Charger

Battery Level Meter

Channel Monitor

Channel Scan

Dual Watch

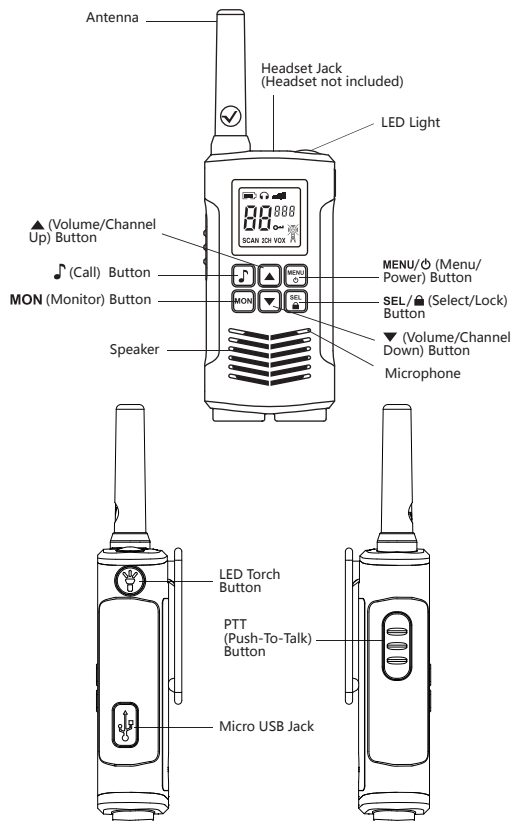
Keypad Lock

LED Torch

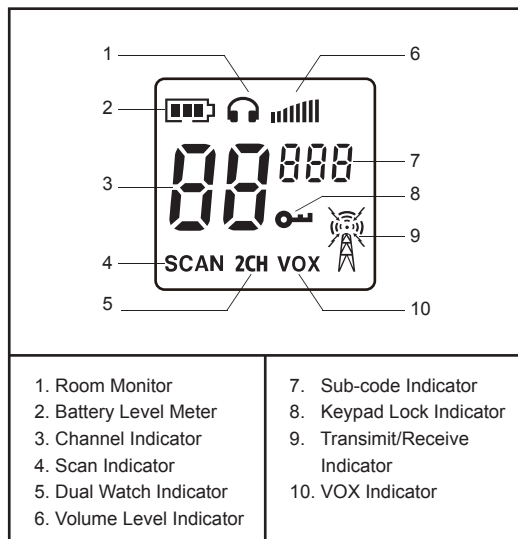
Battery Low Alert

Power Source: 6 AA NIMH Rechargeable Batteries

## Control and Function



## Display



## YOUR NEW RADIO

The two-way radios operate on mobile radio frequencies, and can be used in any country where mobile radio frequencies are authorized, subject to applicable regulations.

### Turning Your Radio On And Off

To turn on the radio press and hold the POWER ON/OFF button until a channel number appears and the radio Beeps . Press and hold POWER ON/OFF button until the display goes blank to turn off.

### Monitor Function

It is good radio etiquette to monitor the channel for activity before you transmit, to ensure that you do not interrupt other users already on the channel. Press and hold "Mon" to check for channel activity. If you hear static, the channel is clear for use.

### The Battery Meter

The battery meter located in the display indicates how much battery power you have remaining, to protect the rechargeable battery, when battery power is low, the final bar in the Battery Low icon will blink and an audible tone will sound twice before the radio shuts off. Your batteries should be replaced or recharged, if using rechargeable batteries.

## TALKING AND LISTENING

Read this manual carefully before use.

Your radio has 22 channels. If you are in a group and you wish to talk to each other, all radios must be set to the same channel and interference eliminator code (CTCSS). If you experience interference and need to change channel, ensure that you change

the channel and code of all radios in your group.

- For maximum clarity, hold radio 5 to 7 centimeters from mouth.
- Press and hold "PTT" and speak into the microphone. LED indicator light glows continuously when transmitting.
- To receive messages, release "PTT".

## Volume

Press Up button to increase or DOWN button to decrease the volume. The volume level icon v is displayed. Select volume level 1-8.

## Channel

- Press "MENU" button the channel number will begin to flash.
- Use "UP" or "DOWN" button to change channel.
- Press "PTT" button to set new channel.

## Interference Eliminator Code

Interference eliminator codes help minimize interference by providing you with a choice of code combinations.

- Press "MENU" button until the code number begins to flash.
- Use "UP" or "DOWN" button to change the code.
- Press "PTT" to set new code.

You can specify a different code for each channel.

- To set a channel and code combination, press "MENU" button and then press "UP" or "DOWN" button to select the channel.
- Press "MENU" button again and then press "UP" or "DOWN" button to select a code.
- Press "PTT" to exit the menu and to save the channel and code combination.

To set another channel and code combination, repeat these steps.

## Time-out Timer

The Time-out Timer feature helps extend battery life by preventing accidental transmission. The radio will emit a continuous warning tone after "PTT" button is pressed for 3 minutes and will stop transmitting.

## Keypad Lock

The keypad lock disables the "MENU", "UP" and "DOWN" buttons. It also disables the scan function, but allows you to use the "MON" button to monitor the channel.

Press and hold the "LOCK" button for three seconds to lock or unlock the keypad. When the radio is locked the lock icon will show in the display.

## Scan

By scanning, you can monitor channels and codes for transmissions and lock in on the one that interests you. More importantly, you can find someone in your group who has accidentally changed channels and is talking during your scan.

- To start scanning, briefly press and release the "MON" button.
- If you activate scan while your code is set to 0, then the radio will check for **any** activity on each channel, regardless of the code in use on that channel.
- If you activate scan while the code is set on 1 to 121, then the radio will check for **any** activity on each channel, except the code 0 in use on that channel.
- While the radio is scanning, Scan Icon will display and the radio will scroll through the channels.
- When activity is detected on a channel, the radio will stop scanning and you will hear whatever transmissions are detected.

The radio's display will show the channel and code on which activity was detected.

- If you want to respond to the transmission, press "PTT" button within 5 seconds and you can respond.
- The radio will resume scanning after 5 seconds of inactivity on the channel.
- To stop scanning, briefly press and release "MON" button.

### Scan Advance

If scan stops on a channel that you don't want to listen to, briefly press "UP" or "DOWN" button to resume scanning for the next active channel.

### Hands Free Use (VOX)

VOX allows you to transmit "hands-free" by talking while using VOX accessories connected to the radio.

**Note:** When using audio accessories with your radio, turn your radio off before you place the accessory on your head or in your ear.

### How To Use The VOX Feature

In VOX mode, your radio can be used "hands-free," automatically transmitting when you speak. You can set the VOX sensitivity level to fit the volume of your voice and avoid transmissions triggered by background noise.

#### To turn VOX mode on or off

1. Press the Menu/Power button until the VOX icon flashes on the display. The current On or Off setting is displayed.
2. Press the "UP" and "DOWN" button to turn VOX On or Off.
3. Choose one of the following:

- a. Press the Menu/Power button to enter the new setting and proceed to other functions.
- b. Press "PTT" button to save the setting and return to Standby mode.

### To set VOX sensitivity

1. Press the Menu/Power button until the VOX sensitivity icon flashes and the current sensitivity level is displayed.
2. Press the "Up" or "Down" button to change the setting.
3. Choose one of the following:
  - a. Press the Menu/Power button to enter the new setting and proceed to other functions.
  - b. Press "PTT" button to save the setting and return to Standby mode.

### Call Tone

Press "CALL" button to transmit your call tone, alerting users on the same channel and code that you are about to talk. Your radio has 10 call tones (depend on model) to choose from.

### To Set the Call Tone

- With the radio on, press "MENU" button until "C" appears in the display.
- Current call tone setting will begin to flash.
- Press "UP" or "DOWN" to change and hear call tones while the setting number is flashing.
- Press "PTT" to set new call tone.

### Room Monitor

Enables your radio to detect voice/noises ( according to the sensitivity level set) and transmit back to the listening radio

without pushing the PTT button. The monitoring radio is not able receive any transmissions in this mode.

### **TO turn Room Monitor On**

1. Press Menu button until the Room monitor icon blinks.
2. Press UP or DOWN button to the desired room monitor sensitivity level.
3. Press the LOCK button to turn on room monitor.  
Press the Menu button to turn off room monitor.

Note: When the voice/noise in the monitored room continues for more than 60 seconds, the monitoring radio stop monitoring for 5 seconds, and resumes.

### **Dual watch receiver [dual scan]**

Dual Scan is a user selectable feature. In dual scan, the radio looks for activity on home channel and selected dual scan channel in the radio.

[Dual scan:1] The user can select dual scan channel through menu, when dual scan channel was selected, the dual scan code is the code in dual scan channel, because our radio have different code in each channel through menu setting.

[Dual scan:2] when dual scan feature is enable(user selected a dual scan channel through menu) , a dual icon "2CH" is displayed in LCD.

[Dual scan:3] In dual scan mute state(no signal in home channel and dual scan channel), the home channel with home channel's code and dual scan icon in display. If home channel is actively , the display do not change. If dual scan channel is actively, the radio will display dual scan channel with dual scan channel's code and dual

scan icon. After RX hang time, the radio will return to home channel display.

[Dual scan:4] The dual scan is same as normal scan except this scan have not CSQ feature.Reference scan description , dual scan have scan mute, scan unmute, RX hang time ,TXhang time state..

## CTCSS FREQUENCY (38 groups)

Code	Frea(Hz)	Code	Frea(Hz)	Code	Frea(Hz)	Code	Frea(Hz)
1	67.0	11	97.4	21	136.5	31	192.8
2	71.9	12	100.0	22	141.3	32	203.5
3	74.4	13	103.5	23	146.2	33	210.7
4	77.0	14	107.2	24	151.4	34	218.1
5	79.7	15	110.9	25	156.7	35	225.7
6	82.5	16	114.8	26	162.2	36	233.6
7	85.4	17	118.8	27	167.9	37	241.8
8	88.5	18	123.0	28	173.8	38	250.3
9	91.5	19	127.3	29	179.9		
10	94.8	20	131.8	30	186.2		

## CDCSS CODE WORD TABLE (83 groups)

Code Number	Octal Code	Bit Pattern		Code Number	Octal Code	Bit Pattern	
		MSB	LSB			MSB	LSB
39	023	11101100011100000010011		81	315	110110001101000110011001	
40	025	11010101111100000010101		82	331	01000111110100011011001	
41	026	11001011101100000010110		83	343	01010010111100011100011	
42	031	10100011111100000011001		84	346	01110101001100011100110	
43	032	1011110101100000011010		85	351	00011101011100011101001	
44	043	10110110110100000100011		86	364	11010000101100011110100	
45	047	0001111101100000100111		87	365	0101111000010001110101	
46	051	11111001010100000110001		88	371	00101011000100011111001	
47	054	1101110100100000101100		89	411	11101110110100100001001	
48	065	1011100001100000110101		90	412	11110011100100100001010	
49	071	1100111001100000111001		91	413	01111101001100100001011	
50	072	11010010011100000111010		92	423	10010111001100100010011	
51	073	0101110011010000011011		93	431	11011000101100100011001	
52	074	11101000111100000111100		94	432	11000101111100100011010	
53	114	01101011110100001001100		95	445	11110111000100100100101	
54	115	11100101011100001001101		96	464	01001111110100100110100	
55	116	11111000001100001001110		97	465	11000001011100100110101	
56	125	00001111011100001010101		98	466	11011100001100100110110	
57	131	0111100111100001011001		99	503	01111000110100101000011	
58	132	01100111001100001011010		100	506	01011110001001010000110	
59	134	01011101101100001011100		101	516	10000011011100101001110	
60	143	01101111010100001100011		102	532	00011100011100101011010	
61	152	00111101100100001101010		103	546	00110011110100101100110	
62	155	10001001110100001101101		104	565	00011000111100101110101	
63	156	10010100111100001101110		105	606	10111011001100110000110	
64	162	11010111100100001110010		106	612	11001110001100110001010	
65	165	01100011101100001110101		107	624	000111101101100110010100	
66	172	0000101111100001111010		108	627	00000011111100110010111	
67	174	00110001011100001111100		109	631	11100101000100110011001	
68	205	1101101001100010000101		110	632	11111000010100110011010	
69	223	11010001110100010010011		111	654	10011000011100110101100	
70	226	11110110000100010010110		112	662	01001000111100110110010	
71	243	10001010111100010100011		113	664	01110010011100110110100	
72	244	00111111010100010100100		114	703	01000101011100111000011	
73	245	10110001111100010100101		115	712	00010111101100111001010	
74	251	11000100111100010101001		116	723	01110011000100111010011	
75	261	0010110111100010110001		117	731	00111100100100111011001	
76	263	10111101000100010110011		118	732	0010000111100111011010	
77	265	10000111100100010110101		119	734	00011010101001111011100	
78	271	11110010100100010111001		120	743	00101001101100111100011	
79	306	00011001111100011000110		121	754	01000001111100111101100	
80	311	011110001101100011001001					



## Warnings

Product safety and RF Exposure for two way radio:



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 applicable national and international standards, and also read the operational instructions for safe use.



### CAUTION

Test position and configuration Head SAR was performed with the device configured in the positions according to IEEE1528, and face up SAR was performed with the device 25mm from the phantom, Body SAR was performed with the belt clip on the device 0 mm from the phantom. Body SAR was also performed with the headset attached and without.



### WARNING

## Antennas

- 1) For safe operation, the antenna for the product shall be least 25mm away from your face, when speaking.

- 2) Switching to other antennas is prohibited and will affect the radio performance.
- 3) 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.



### WARNING

## Batteries

All batteries can cause property damage and/or bodily injury such as burns if a conductive material touches exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become hot.

- Exercise care when removing NiMH or AA batteries. Do not use sharp or conductive tools to remove these batteries.
- Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse or other container with metal objects.
- Do not discard your battery in a fire.
- Do not replace the battery in any area labeled "Hazardous Atmosphere". Any sparks created in a potentially explosive atmosphere can cause explosion or fire.
- Do not disassemble, crush, puncture, shred or otherwise attempt to change the form of your battery.
- Do not dry a wet battery or damp battery with an appliance or heat source, such as a hair dryer or microwave oven.
- If the radio battery contact area has been submerged in water, dry and clean the battery contacts before attaching the battery to the radio.



## CAUTION

### Battery Charger Safety Instructions

1. Turn the radio off when charging the battery.
2. Do not expose the charger to outside environment. Chargers should only be used indoors.
3. Do not operate or disassemble the charger. Do not use a charger that has been dropped or damaged in any way.
4. 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.
5. 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.
6. To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
7. Use of an attachment not recommended or sold by Eshow Solutions may result in a risk of fire, electric shock or personal injury.
8. Make sure the cord is located so it will not be stepped on, tripped over or subjected to damage or stress.
9. An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of a 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 condition.
10. The supply cord of the AC adaptor cannot be replaced. If the cord is damaged, call customer service.



## WARNING

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

### Electromagnetic Interference/Compatibility

**Note:** Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility. During transmissions, radio generates RF energy that can possibly cause interference with other devices or systems.

### 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 onboard an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

**Medical Devices** – Pacemakers, Defibrillators or other Implanted Medical Devices

### **Persons with pacemakers, Implantable cardioverter defibrillators (ICDs) or other active implantable medical devices (AIMD) should**

- Consult with their physicians regarding the potential risk of interference from radio frequency transmitters, such as portable radios (poorly shielded medical devices may be more susceptible to interference).
- Turn the radio OFF immediately if there is any reason to suspect that interference is taking place.
- Do not carry the radio in a chest pocket or near the implantation site, and carry or use the radio on the opposite side of their body from the implantable device to minimize the potential for interference.

### **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.

### **Use of Communication Devices While Driving**

Always check the laws and regulations on the use of radios in the areas where you drive.

- 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 or regulations so require.

### **For Vehicle with Air Bags**

Refer to the vehicle manufacturer's manual prior to installation of electronic equipment to avoid interference with air bag wiring. 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 force. 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 Atmosphere**

Turn off your radio prior to entering any area with a potentially explosive atmosphere. Only radio types that are especially qualified should be used 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 to 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 atmospheres 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 areas posted "Turn off two-way radios". Obey all signs and instructions.

-  Warning: CHOKING HAZARD – Small Parts. Not for children under 3 years.
-  Attention! RISQUE D'ÉTOUFFEMENT – Contient de petits éléments. Ne convient pas aux enfants de moins de 3 ans.
-  Advertencia: PELIGRO DE ASFIXIA – Contiene piezas pequeñas. No conveniente para niños menores de 3 años.
-  Achtung: ERSTICKUNGSGEFAHR – Kleinteile. Nicht für Kinder unter 3 Jahren geeignet.
-  Waarschuwing: VERSTIKKINGSGEVAAR – Bevat kleine onderdelen. Niet geschikt voor kinderen jonger dan 3 jaar.
-  Attenzione: RISCHIO DI SOFFOCAMENTO – Contiene pezzi di piccole dimensioni. Non adatto a bambini di età inferiore a 3 anni.
-  Aviso: RISCO DE ASFIXIA – Peças pequenas. Produto não recomendado para crianças com menos de 3 anos.

## Technical specifications and warnings (US)

### Technical specifications (US)

#### ◆ Technical Parameters (US)

Operating frequency: 462.5500MHz~467.7125MHz

Output Power: ≤0.5W

Channels: 22 FRS

Modulation type: F3E

Power source: AA Alkaline 4.5V DC /

NiMH battery 3.6V DC 650mAh

#### ◆ Channel and frequency correspondence list (US)

Channel	Frequencies (MHz)	Power -Watts	Channel	Frequencies (MHz)	Power -Watts
1	462.5625	0.5	12	467.6625	0.5
2	462.5875	0.5	13	467.6875	0.5
3	462.6125	0.5	14	467.7125	0.5
4	462.6375	0.5	15	462.5500	0.5
5	462.6625	0.5	16	462.5750	0.5
6	462.6875	0.5	17	462.6000	0.5
7	462.7125	0.5	18	462.6250	0.5
8	467.5625	0.5	19	462.6500	0.5
9	467.5875	0.5	20	462.6750	0.5
10	467.6125	0.5	21	462.7000	0.5
11	467.6375	0.5	22	462.7250	0.5

Note: Above channels are FRS license free channels

## Warnings (US)



### WARNING

Your radio is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- United States Federal Communications Commission, Code of Federal Regulations: 47 CFR part 2.1093
- IEEE Std. 1528:2013 and KDB447498, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- American National Standards Institute (ANSI)/Institute of Electrical & Electronic Engineers (IEEE) C95. 1-2005
- Institute of Electrical and Electronic Engineers (IEEE) C95.3-2002
- International Electrotechnical Commission IEC62209-2:2010



### CAUTION

This product is compliance to FCC RF Exposure requirements and refers to FCC website

<https://apps.fcc.gov/oetcf/eas/reports/GenericSearch.cfm>

search for FCC ID: 2AAR8RETEVISRT45 to gain further information include SAR Values.



### WARNING

## SAFETY INFORMATION

Your wireless hand-held portable transceiver contains a low power transmitter. This product sends out radio frequency (RF) signals when the Push-to-Talk (PTT) button is pressed. The device is authorized to operate at a duty factor not to exceed 50%. In August 1996, the Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for hand-held wireless devices.

To control your exposure and ensure compliance with the general population or uncontrolled environment exposure limits, transmit no more than 50% of the time. The radio generates measurable RF energy exposure only when transmitting.



### WARNING

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment and should not be made. To comply with FCC 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 FCC equipment authorization for this

radio could violate FCC rules.

Note: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.



#### **WARNING**

### **Body-Worn Operation**

To maintain compliance with FCC's RF exposure guidelines, for body-worn operation, this radio has been tested and meets the FCC RF exposure guidelines when used with Eshow Radio Corp. accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

If you wear the radio on your body when transmitting always use Eshow supplied or approved belt clip, holster, case, or body harness for this product.

If you do not use any accessories supplied or approved by Eshow, ensure the radio and its antenna are at least 1 inch (2.5cm) from your body when transmitting.

This product is authorized to operate at a duty factor not to exceed 50%. To transmit(talk), push the PTT key, to receive calls, release PTT key. Transmitting 50% of the time or less is important because the radio generates RF energy only when it transmit.