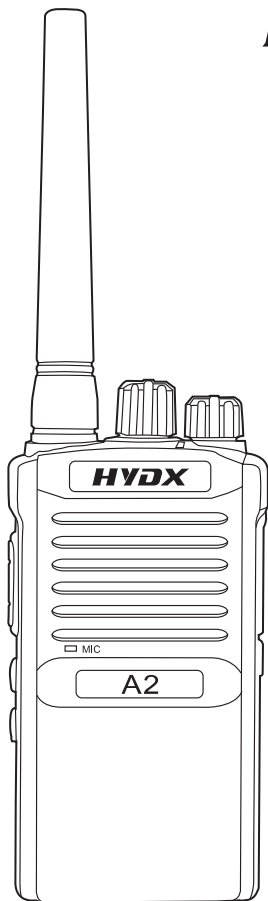


# ***HYDX***



Handheld Two Way Radio

FCC ID:2AB4FA2V

**A2**

**User's Manual**

## **INTRODUCTION**

Thank you very much for purchasing handheld two way radio A2.

With compact and professional design ,stable performance , A2 is widely using for most of industries and area .For example, logistic ,transportation ,construction and so on .

This radio uses professional and commercial or amateur frequency ,you need to apply for use to radio management institution of the provinces, cities or autonomous regions .

Please read this manual carefully in order to know how to properly operate the radio before use.

## Contents

Unpacking and Checking Equipment-----	01
Preparation-----	02
Getting Acquainted -----	05
Radio Operations-----	06
Program Settings-----	07
Side key programming-----	15
Troubleshooting -----	19
Technical Specification -----	20
Appendix I CTCSS (Hz) -----	22
Appendix II DCS-----	23

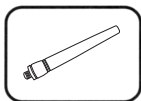
## Unpacking and Checking Equipment

### Welcome to use radios, before using we suggest you:

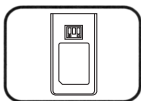
- Please check the packing box of this product and see if there are signs of damage.
- Please open the packing box carefully. We recommend that you identify the items listed in the following packing list. if you find that our product and its accessories in handling are lost or damaged during the shipment. Please immediately contact dealers.

### Parts List

Item	Quantity
Rubber Antenna	1
Li-ion Battery Pack	1
Desktop Charger	1
Power Adapter	1
Belt Clip	1
Users' Manual	1



Rubber Antenna



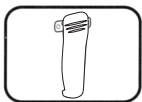
Li-ion Battery Pack



Desktop Charger



Power Adapter



Belt Clip



Users' Manual

# Preparation

## ■ Charging the Battery

### 1. Using the battery

The battery is not completely charged at the factory, please charge it fully before using.

To extend the battery life time, please power off the battery when you don't use two way radio, and save battery in a cool (temperature less than 25 °C) and dry place.

### 2 . Precautions of Charging Equipment

- 1) Do not expose the charger to rain or snow.
- 2) Do not operate the charger if it has received a sharp blow, or has been dropped or damaged in any way.
- 3) Do not disassemble the charger if it has received a sharp blow, or 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 Juston 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 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 18 AWG for lengths up to 100 feet, and 16 AWG for lengths up to 150feet.

10. Do not replace charger's power cord. If the power cord damages, you must stop using charger immediately.

### **3. Charging the Battery**

Please use the battery charger designated by to charge battery.

After purchase or extended storage (more than two months), the first time to charge battery cannot make battery reach its normal operating capacity. After repeating charge /discharge it two or three times, the operating capacity will increase to its normal capacity.

### **4. Please Charge the Radio According to Operation Steps as Follows:**

- 1) Insert power adapter into power supply socket.
- 2) Insert output terminal of power adapter into DC jack behind the charging kit, now the charging orange indicator lights about 2 seconds then goes out.
- 3) Insert the battery or radio equipped with battery into the charging kit.
- 4) Confirm the battery and charging kit terminal contact reliably, when charging indicator light turns into red and charging starts.
- 5) After completion of charge (charging time about 5 hours), light turns to be green.

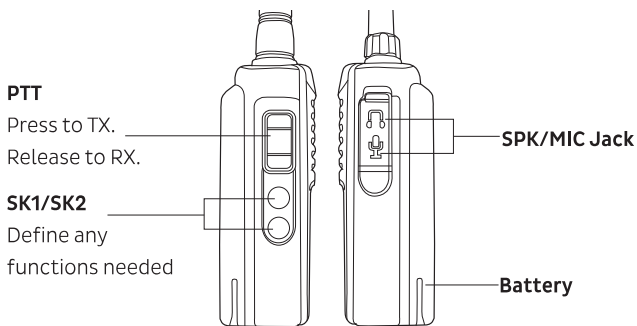
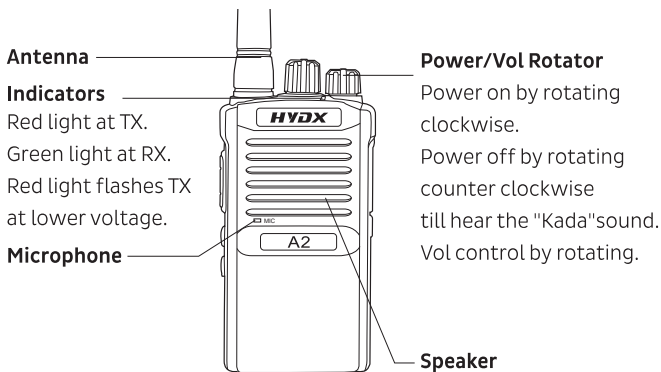
## 5. Indicators Display as Following:

Status	Indicator
Power Connected	Orange light is on about
No battery(temperature end judges)	2 seconds then goes out
Charge normally	All go out
The battery is fully charged	Red light is on
Fault (over temperature, battery short circuit or over discharge state)	Green light is on
	Red light flashes

**Note: Before charging, please turn off radio power equipped with battery. When charging, using radio will interfere with normal charge of battery and transceiver effect.**

## GETTING ACQUAINTED

---



**Note:** Please refer to the following description to define SK1-SK2 by program software.



## Radio Operations

### ■ Power On/Off



Turn the power switch knob clockwise to turn on radio power; to turn it off, turn the power switch knob counter-clockwise.



### ■ Volume Control



Turn the volume switch knob clockwise to increase volume; to decrease the volume, rotate the volume switch knob counter-clockwise.



### ■ TX

1. According to different settings of monitor, please monitor the radio for some while. Ensure there is no radio transmitting at the chosen channel.

2. Press PTT and face to microphone talking.

1) Please make the distance between your lip and microphone at 2.5-5 cm, and talk as usual to get the best voice quality.

2) Press and hold PTT, LED red light is on.

3) Release PTT to receive information.

3. When using earphone with VOX function, users can hands-free talking.

4. Also users can active the IVOX function which no need to use earphone.

## ■ RX

When radio receiving information ,green LED lights .

- 1) Only same signaling and CTCSS setting can receive information .
- 2) May not receive any calling if radio is at lower signal and set high level SQL.
- 3) Local dealer maybe program your radio with CTCSS/DCS . Users can receive the same signaling information if chosen channel with CTCSS/DCS . Or it can not get any calling .

Radio with CTCSS/DCS will help you to ignore ineffective calling. Although there seems special channel for CTCSS/DCS ,radio also can communicate with other radio which programmed the same CTCSS /DCS .

## Program Settings

**Note:**This product could program the frequency on computer through interface by manufacturer only.

### ● Radio Basic Information

#### ▶ Edit password for reading /programming software.

You can input desired password for your software by characters , A-Z,0-9 .

#### ▶ Back to Factory Default Settings

You can initialize factory default settings by program software.

#### ▶ TOT

This function can prevent someone to occupy the present channel for long time and limit TX time, meanwhile prevent radio from damage by long time transmitting .

#### ▶ Beeper

Choose desired beeper to sound when turn on the radio .

### ▶ CTCSS/DCS

You can set desired CTCSS/DCS for every channel .You choose from the attached CTCSS 50/DCS 105 list .

### ▶ Roger

You can set desired on/off function for radio when over the transmission .

### ▶ End-of-Transmission Tone

Turn End-of-Transmission tone on/off . If enabled ,your two way radio will transmit a tone when you finish transmitting .

### ▶ Beeper

Turn beeper on/off . If turn off beeper ,key tone and power on tone will not be available .

### ▶ Decode tail elimination by frequency without CTCSS/DCS decode

Tail elimination by frequency at channel without CTCSS/DCS decode .

### ▶ Encode tail elimination by frequency without CTCSS/DCS encode

Tail elimination by frequency at channel without CTCSS/DCS encode .

## ● VOX

### ▶ VOX Level

Set desired VOX level

### ▶ **VOX Delay Time**

This function helps you to make fluent communication by avoiding quickly back to TX mode without transmitting the last sentence .

### ▶ **No VOX During RX**

When radio is receiving , VOX/IVOX are not available .

### ▶ **Voice Report : VOX On/Off**

There will voice report for turning on VOX.

### ▶ **iVOX (Available Without earphone)**

You can hands-freely communicate with others if active this function .

## ● **Scan**

### ▶ **Priority Scan**

Choose desired channels for priority scan .

1---No priority scan channel .

2---Settled choose a channel always to be priority scan channel .

3---Selected Rotate to the present channel as priority scan channel .

### ▶ **Priority Scan Channel Number**

Choose desired channels to prior scan when at settled mode .

### ▶ **Back after Scanning**

Under scanning ,press PTT to back the specific channel .It makes users available to communicate at specific channel during scanning .

1 Selected----No matter what kind scanning mode is radio in , users rotate channel 5 to channel 8 and available to communication at channel 8 .

## 2 Selected + Present Channel

Suppose radio in channel 5 and active the scanning ,you can communicate at channel 8 when receiving signal from channel 8 . However, time of receiving at channel 8 is over specific time , then you will communicate at channel 5 .

3 Priority ---You can transmit at priority scan channel in any scanning mode .

4 Priority +Present Channel -----Suppose present channel is No.5 ,and priority channel is NO.6, once active scanning ,you can communicate at channel 8 when receiving signal from channel 8 . However, time of receiving at channel 8 is over specific time , then you will communicate at channel 5 .

### ▶ **Delay Time Between RX and Scanning**

You can set the time of radio automatically back to scan after RX .

### ▶ **Delay Time Between TX and Scan**

You can set the time of radio automatically back to scan after TX.

### ▶ **Scanning Beeper On/Off**

Your radio can turn on/off scanning beeper.

### ▶ **Scanning Indicator**

If enabled scanning indicator and green light flashes .

### ▶ **Automatically Scan and Quit**

Rotate to channel 16 ,radio will go into scanning automatically . Rotate to other channels to quit scanning .

## ● Battery

### ▶ Battery Save

The battery saver function decreases the amount of power used when a signal is not being received and no operations are being performed ( no keys are being and no switches are being turned ). But when your radio receives information first time ,the delay time will be longer .

### ▶ Low Battery Beeper Type

You can choose the desired beeper for low battery alert.

### ▶ Low Battery Alert Interval

Set the interval by every low battery alert .

### ▶ TX Available at Lower Battery

Set the certain voltage value to enable radio TX at lower battery (if battery lower than certain value ,radio turns off power automatically )

### ▶ Voltage Report

When radio is power on ,you will hear the voltage report like this  
7-4 (7.4V)

### ▶ Low Battery Voice Report

Radio will report low battery state if active this function

### ▶ Low Power Orange Indicator

Orange indicator lights when TX at low power.

### ▶ **APO at High Voltage**

Radio automatically power off if the voltage higher than pre-set voltage value.

### ▶ **APO at Low Voltage**

Radio automatically power off if the voltage lower than pre-set voltage value.

## ● **DTMF Settings**

### **Encode DTMF**

#### ▶ **Pre-carrier Frequency Duration :**

Set sending pre-carrier frequency duration before sending DTMF , so that you can get more accurate and stable information .  
Choose desired duration from 0-5000 ms.

#### ▶ **DTMF Code Continuous Duration:**

Set TX continuous duration for every DTMF code. Choose desired duration from 80-2500 ms.

#### ▶ **DTMF Code Interval :**

Set interval between ending sent DTMF and next DTMF , Choose desired interval from 80-2500 ms.

#### ▶ **PTT ID at the begin of TX**

You can input at most 16 digits DTMF code to send as PTT ID before transmitting.

#### ▶ **PTT ID at the end of TX**

You can input at most 16 digits DTMF code to send as PTT ID after transmitting.

### ▶ Side Tone

This tone is for checking if the DTMF code sent by using radio.

### ▶ DTMF Key Lock

You can lock the desired DTMF key

### Decode DTMF

#### ▶ ID Code

The ID code is consisted of 1-10 digits .Radio decodes right DTMF when receiving matched radio with programmed DTMF signaling .

#### ▶ Auto Reset Timer

If there is no communication after decoding DTMF code, DTMF code will be reset and make the speaker quiet .Timer starts counting from stopping receiving carrier signal.

#### ▶ ID Group Calling

Define a universal group code by DTMF character A,B,C,D, \*\*#.

Radio can decode if receiving right ID code and one or all code will be replaced by this universal code .

**For example :**

#### Group C

	Station 1	Station 2	Station 3	Station 4
<b>Code</b>	123	223	235	355
Calling C23	Station 1 and 2 called			
Calling CC5	Station 3 and 4 called			
Calling CCC	All Station Called			



### ▶ Calling Alert

Indicator alert when receiving matched signaling.

### ▶ Calling Alert Beeper

Beeper alter when receiving matched signaling.

## ● Stun/Kill

### ▶ Kill Code

Kill radio when it receives assigned code .Decode unless receive kill decode Stun+#.

### ▶ Kill Group Code

Similar as ID Group Code

**For example :**

#### **Group C**

	Station 1	Station 2	Station 3	Station 4
<b>Code</b>	123	223	235	355
Base sending Kill Code C23	Station 1 and 2 called			
Base sending Kill Code CC5	Station 3 and 4 called			
Base sending Kill Code CCC	All Station Called			

### ▶ Stun/Kill Type

You can stun desired radio to disable transmission until receiving decode code

Or kill desired radio to disable transmission and receiving until receiving decode code.

**Note: Whatever radio power on again or not ,radio still memory the stun/kill function.**

### ▶ Input Information

This function allow radio input and store at most 16 letters or numbers , Chinese words. It also can be used to store SN-code, identification for Program ID ,ID and so on .

### ▶ ANI

ANI is identifying for every radio and code is consist of 6 digits by choosing from 1-9.

Hold PTT button to power on radio ,it will report the ANI code for checking identity .

## Side-Keys Programming Function

There are four operating methods to be programmed by PC software.

SK1	Short Press
	Long Press
SK2	Short Press
	Long Press

## See following side-key functions:

NO.	English	Details
1	OFF	No function available
2	DIAL	"Dial" is applicable for choosing pre-set code and call someone by DTMF code. Press "Dial" or PTT ,then press "dial" to send DTMF code .
3	MONITOR	Stop/Start monitor the CTCSS or DCTCSS ,meanwhile radio automatically turn on SQL when receives carrier signal.
4	SCAN	Scanning frequency/memorial channel , press any key except [ ▲ ] / [ ▼ ] to quit scanning .
5	HIGH/LOW POWER	High/Low power exchange.
6	TALK AROUND	Disconnect with Repeater ,communicate with correspondent groups . Once active talk around function, please make sure all radio at same transmitting and receiving frequency with same codes. Press this key to enter into talk around , press again to quit this function .
7	REVERSE FREQUENCY	(1)Reverse :exchange the transmitting and receiving frequency .Once active this function ,please do change the receiving and transmitting frequency . So do the code setting . (2)Press this key to enter into RESERVE mode, press again to quit .

NO.	English	Details
8	VOX	Active this VOX function and no need to press PTT to communicate . Press to turn on/off VOX function by programming .
9	SQL	Active this SQ , and keep at SQ state when radio receives carrier wave
10	SQL MOM	Active this SQ , and keep at SQ state when radio receives carrier wave
11	CHANNEL LOCK	Press this key to active or disable channel lock function. Once radio in channel lock state ,it is invalid to rotate channel .
12	BATTERY	Turn on/off battery LED indicator and report . RED: Low battery ORANGE: Midium battery GREEN: High battery
13	CHANNEL REPORT	Report the present channel number .
14	REPORT TYPES	ENGLISH/CHINESE/OFF
15	EMERGENCY CALL	Press this key to active emergency call , press PTT to quit .
16	SQL CHECKING	Report the present SQL
17	SQL ADJUSTING	Choose desired level for squelch (0-9)
18	VOX LEVEL	Choose desired VOX level from(1-10) . More details ,please refer to the above function description.

NO.	English	Details
19	PTT ID EXCHANGE	Press to change the function ( recycle from 1-off, 2-TX beginning,3-TX over, 4-Both)
20	DIAL LIST EXCHANGE	Press to change PTT ID (recycle from 1-8) . Please preset the PTT ID date in the radio .
21	ACTIVE SP	Turn on speaker, you can hear sound from radio when it receives correct signaling. (Recycle from 1-Carrier wave and Q/D , 2-Q/D and signaling ,3-Q/D or signaling )
22	STOP PTT ID EXCHANGE	No report PTT ID .
23	TAIL ELIMINATION EXCHANGE	Press this key to exchange the tail elimination method .(Recycle from 120 degree,180 degree,240 degree ,frequency , 120 degree+ frequency ,180+ frequency , 240+frequency ,none )
24	VOL INCREASE	Choose desired VOL level from off-Level 10. Please refer to program software that there are 0-255 for each VOL level.
25	VOL DECREASE	Choose desired VOL level from Level10-off

## IV Troubleshooting

Symptom	Try This
No power	<ul style="list-style-type: none"><li>● Battery power may have run out, please update battery or recharge it. Battery may not be properly installed, please take it off and re-install.</li></ul>
Battery lasts a short time after charge	<ul style="list-style-type: none"><li>● The battery life is over, please replace new battery.</li></ul>
Can not talk to other members of your group.	<ul style="list-style-type: none"><li>● Verify transmitting is within effective operating range.</li><li>● Verify channel, frequency and code settings are correct.</li></ul>
Hearing other conversation on a channel (not group members')	<ul style="list-style-type: none"><li>● Please change code settings, including all two way radio settings of your group.</li></ul>

## IIV Technical Specifications

General Specification	
Model Name	A2
Frequency Range	VHF: 136-174 MHz
Output Power	High power $\leq$ 5w
Channel	16 channels
Channel Spacing	12.5KHz
CTCSS/DCS	50 CTCSS / 105 DCS
Antenna Impedance	50 Ohm
Working Temperature	-20 °C to +50 °C
Working Voltage	DC7.4v
Battery Type	Li-ion battery
Dimension(antenna excluding)	115.5( H ) $\times$ 57.5( W ) $\times$ 38.5(D)mm
Weight (include antenna, battery)	About 230 grams

**Appendix I CTCSS (Hz)**

1-67.0	14-103.5	27-159.8	40-199.5
2-69.3	15-107.5	28-162.2	41-203.5
3-71.9	16-110.9	29-165.5	42-206.5
4-74.4	17-114.8	30-167.9	43-210.7
5-77.0	18-118.8	31-171.3	44-218.1
6-79.7	19-123.0	32-173.8	45-225.7
7-82.5	20-127.3	33-177.3	46-229.1
8-85.4	21-131.8	34-179.9	47-233.6
9-88.5	22-136.5	35-183.5	48-241.8
10-91.5	23-141.3	36-186.2	49-250.3
11-94.8	24-146.2	37-189.9	50-254.1
12-97.4	25-151.4	38-192.8	
13-100.0	26-156.7	39-196.6	

**Appendix II DCS**

023	071	143	225	266	356	452	532	664
025	072	145	226	271	364	454	546	703
026	073	152	243	274	365	455	565	712
031	074	155	244	306	371	462	606	723
032	114	156	245	311	411	464	612	731
036	115	162	246	315	412	465	624	732
043	116	165	251	325	413	466	627	734
047	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	
054	132	212	263	346	445	523	654	
065	134	223	265	351	443	526	662	



## Warranty Card

Contact:\_\_\_\_\_

Company Name:\_\_\_\_\_

ADD:\_\_\_\_\_ Post Code:\_\_\_\_\_

Tel:\_\_\_\_\_ Mob.: \_\_\_\_\_

Fax:\_\_\_\_\_ Email: \_\_\_\_\_

Ordered:\_\_\_\_\_ Model:\_\_\_\_\_

Ordered No.:\_\_\_\_\_ Purchased Date:\_\_\_\_\_

S/N: \_\_\_\_\_ (EAN)\_\_\_\_\_

Warranty Card No.:\_\_\_\_\_

Trouble Description:

\_\_\_\_\_  
\_\_\_\_\_

### Terms and Conditions

1)This warranty is provided only for product purchased from authorized dealer of Juston Electronic Equipment Co.Ltd ( hereinafter called ) .

2) Warrants this product to be free from manufacturer's defects for a specified period .

3)Within the specified warranty period , will repair or replace non consumable parts (excluding casing ,accessories ,batteries ,cable and consumable) that are damaged under normal use (by judgement of ) at no additional charge .

4)The warranty will not be covered under the following conditions.

A, Out-of-warranty products .

B , The product is modified without approval.

C ,Obvious attack of appearance whatever it is .

D ,The product is subjected to unusual physical or electrical stress , including physical damage ,burnt components and broken connectors, watered radio.

E ,The serial number label is removed or altered .

5)This warranty card must be presented together with dealer's invoice when the defective product is returned for repair .

Otherwise , reserve the right of not providing free warranty during the warranty period .

6)The customer is responsible for returning the defective product at his own expense .

7)Your warrant period is calculated from the date of invoice of this product .

## SAFETY TRAINING INFORMATION



Your Fujian Juston Electronic Equipment Co.,Ltd. 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 Fujian Juston Electronic Equipment Co.,Ltd. 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.



To ensure you're your expose to RF electromagnetic energy is

within the FCC allowable limits for occupational use, always adhere to the following guidelines:

◆ **DO NOT** operate the radio without a proper antenna attached, as this may damaged the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or antenna specifically authorized by the manufacturer for use with this radio.

◆ **DO NOT** transmits for more than 50% of total radio use time ("50%duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the "TX indicator" lights red. You can cause the radio to transmit by pressing the "PTT" switch.

◆ **ALWAYS** keep the antenna at least 2.5 cm (1 inch) away from the body when transmitting and only use the belt-clip which is listed in instructions when attaching the radio to your belt, etc., to ensure FCC RF exposure compliance requirements are not exceeded. To provide the recipients of your transmission the best sound quality, hold the antenna at least 5 cm (2 inches) from your mouth, and slightly off to one side.

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 as-sure that this radio operates with the FCC RF exposure limits of this radio.

#### **Electromagnetic Interference/Compatibility**

During transmissions, your Fujian Juston Electronic Equipment Co.,Ltd. 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.