**Congratulations on selecting the APR100 Series from
RCA Communications Systems - The most trusted name in radios!**

INTRODUCTION

Our APR100 series of business communications products establishes a new benchmark in high quality radio products made to perform flawlessly under the most demanding commercial conditions. Cutting edge design, professional grade materials and components, simple operation and superior assembly quality: Alpha One™ has it all, including our exclusive no-nonsense, two-year "Warranty Protection Program," one of the most comprehensive warranties in the communications industry.

To ensure you achieve maximum performance from your Alpha One™ APR100 radio, please be sure to read this manual carefully.

CONTENTS

SAFETY AND GENERAL INFORMATION

Please observe the following general safety precautions during all phases of operation, service and repair of this equipment.

■ Turn radio off prior to entering any area with a potentially explosive atmosphere, such as gas, petroleum, chemicals, blasting caps, etc.

■ Do not charge the battery in a potentially explosive atmosphere.

■ Do not use any portable radio that has a damaged antenna, as it can burn skin.

■ This equipment is to be serviced only by an authorized Alpha One™ Service Center. Any service performed by unauthorized technicians will void the warranty.

■ Turn radio off when near electrical blasting caps to avoid possible interference with blasting operations. Obey posted signs such as those in hospitals or blasting areas advising people to turn off all two-way radios. Obey pilots and flight attendants instructions to turn off radios on airplanes.

■ Do not place a radio over an air bag or in an air bag's deployment area, as the force with which an air bag is inflated could propel the radio and may cause serious injury.

■ Do not place the radio close to a heat source or expose the radio to direct sunlight for a prolonged time.

■ Hold the radio while in use in a vertical position with the microphone one to two inches away from your lips. While wearing a transmitting radio, keep the radio and its antenna at least one inch away from your body.

PRODUCT INSPECTION

Prior to unpacking the Alpha One™ portable radio, please inspect the packaging for signs of damage and report any damage or missing components immediately to your Alpha One™ Sales and Service Center. Every Alpha One™ APR100 portable radio comes with the following items:

Items	Qty.
ANTENNA ANH3500U-6 UHF 440-470MHZ or ANH3500V-6 VHF 136-174MHz	1
Li-ion BATTERY B1016LI 1600mAh Lithium	1
CHARGER CH1001 Rapid Charger	1
ADAPTOR PS3501 Charger Adaptor	1
BELT CLIP BC100 Screw-In Belt Clip	1
USER MANUAL	**1**
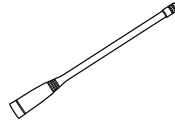
ANTENNA
ANH3500U-6 UHF 440-470 MHz
ANH3500V-6 VHF 136-174 MHz
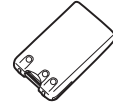
Li-ion BATTERY
B1016LI
1600mAh Lithium

CHARGER
CH1001
Rapid Charger

ADAPTOR
PS3501
Charger Adaptor

BELT CLIP
BC100
Screw-In Belt Clip

USERS' MANUAL

Alpha One™ APR100 OVERVIEW

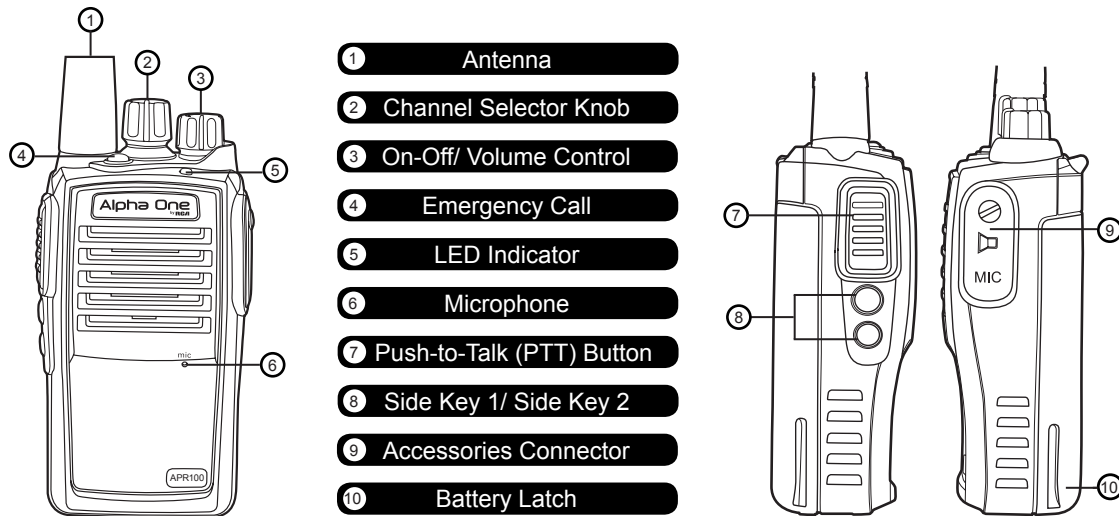|	
1	Antenna
2	Channel Selector Knob
3	On-Off/ Volume Control
4	Emergency Call
5	LED Indicator
6	Microphone
7	Push-to-Talk (PTT) Button
8	Side Key 1/ Side Key 2
9	Accessories Connector
10	Battery Latch

MIC

Figure 1

■ **PTT** (Push-to-Talk) Key Press and hold down the PTT key to transmit, release it to receive.

■ **SK1** (Side Key 1) Side Key 1 is the programmable key to which your dealer can assign long and short press function. (See Glossary for definitions of long and short press.)

■ **SK2** (Side Key 2) Side Key 2 is the programmable key to which your dealer can assign long and short press function. (See Glossary for definitions of long and short press.)

■ **LED** Indicator for information on status of LED Indicator and alert tone. (See Functions and Settings for the detailed operations.)

■ **Channel Selector Knob** Turn the knob to select channels 1 to 16.

■ **Radio On-Off/Volume Control Knob** Turn the knob clockwise to turn the radio on, and turn the knob fully counter-clockwise until it clicks to turn the radio off. Turn the knob clockwise to increase the volume, or counter-clockwise to decrease the volume. WARNING! Make sure the APR100 is at low volume prior to using any earpiece accessory, and then adjust the volume to a comfortable level. Failing to do so may cause hearing damage.

■ **Battery Latch** Use to remove the battery.

■ **Accessory Jack** The jack is used to connect speaker, microphone, external PTT, earpiece, headset, programming cable and cloning cable.

BATTERY INFORMATION

Initial Use

New batteries are shipped from the factory uncharged. Charge a new battery approximately 12 hours prior to initial use (applies to Ni-CD, Ni-MH and Li-Ion batteries charged with slow or rapid rate charger).

NOTE: The Indicator Light will turn GREEN approximately one hour after battery is placed in a Rapid Rate Charger; however, it is strongly recommended the battery charge for 12 hours. This initializes it and allows for the best performance. Maximum battery capacity is normally achieved after two or three full charge / discharge cycles. If battery power runs low, recharge the battery. Batteries that are brand new or that have been stored for an extended period of time (several weeks), may require more time to fully charge.

Applicable Battery Packs

To reduce the risk of injury, use only batteries specifically designed for your Alpha One™ two-way radio.

Caution

1. To avoid risk of personal injury, do not dispose of batteries in a fire.

2. Dispose of batteries according to local recycling regulations. Do not dispose as household waste.

3. Never attempt to disassemble the battery.

Battery Tips

1. When charging a battery, keep it at a temperature between 41°F ~ 104°F (5°C ~ 40°C) to ensure a full charge. Temperatures outside this range significantly reduce battery life.

2. Before charging a battery attached to a radio, turn the radio off to ensure a full charge. Never leave a radio on while it is

in the charger, as it can damage both the battery and the radio; the charger is not a radio stand.

3. Do not cut off the power supply or remove battery while charging.

4. Never charge a battery that is wet. Dry it with soft cloth prior to charging.

5. The battery will eventually weaken. When the operating time (talk-time and standby time) is noticeably shorter than normal, replace the battery.

Tips To Prolong Battery Life

1. Battery performance greatly decreases at temperatures below -4°F (-20°C).Having a spare battery is always necessary in extremely cold environments. A cold battery may work again when it returns to room temperature,so keep it for later use.

2. Dust on the battery contact may cause the battery not to work or charge properly. Use a clean dry cloth to wipe it before attaching the battery to the radio.

3. Batteries with damaged contacts can be extremely dangerous. Any battery with damage to one or more contacts should be replaced immediately and not used under any circumstances.

Battery Storage

1. Fully charge a battery before storing it for an extended period of time to avoid battery damage due to over-discharge.

2. Recharge a battery after three months storage to avoid reduced battery capacity due to over-discharge.

3. When storing a battery, keep it in a dry place at room temperature.

Charging the Battery

1. When the battery level is very low, recharge it. It is never recommended to completely drain the battery, which may cause your battery to malfunction and no longer accept a charge.

2. Use only chargers certified for use with your Alpha One™ radio and battery. When the charger's LED illuminates red, it is an indication that the battery is being correctly charged. When the LED illuminates green, the battery charge is complete.

Steps for setting up your charger

1. Plug the adapter's AC connector into the AC outlet socket.

2. Plug the adapter's DC connector into the DC socket on the back of the charger.

3. Place the radio with the battery attached, or the battery alone, in the charger.

4. Make sure the battery contact is touching the charging terminals. The charging process begins when the red LED light illuminates.

5. The green LED light will illuminate approximately one hour later, indicating the battery is fully charged.

ANTENNA INFORMATION

Stubby (3") antennas are ideal for communication within limited range, and standard (6") antennas optimize coverage; the longer the antenna, the better the coverage is. If you use a stubby antenna for convenience instead of a standard length antenna, you can expect approximately a 30% reduction in coverage. When using a two-way radio outdoors, heavy rain, snow, buildings or thick forest can dramatically reduce radio coverage.

ASSEMBLY AND DISASSEMBLY

Attaching the Battery

1. Hold the battery and attach it close to the top of the radio chassis. (Note: Insert tab on top of the battery into the top of battery slot.) See Figure 2.

2. Lightly press the bottom of the battery towards the radio and press the latch to the battery until it clicks. See Figure 3 and 4.

Note: If the battery is not securely locked, remove it and reattach it.

Removing the Battery

1. First, turn off the radio. Hold the top of radio and press the belt clip to make its tail turn up.

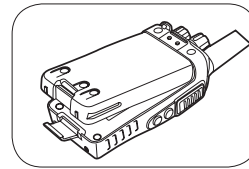2. Release the battery latch and remove the battery. See Figure 4.

Figure 2
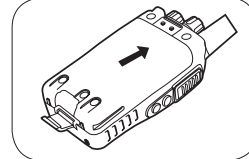
Figure 3
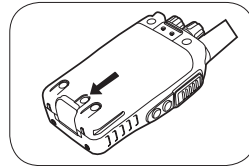
Figure 4

Attaching the Antenna

1. Insert the antenna into the big screw thread hole on top of the main unit.

2. Turn the antenna clockwise until it is screwed down as shown in Figure 5 below.

Removing the Antenna

To remove the antenna, turn it counterclockwise as shown in Figure 5 below.
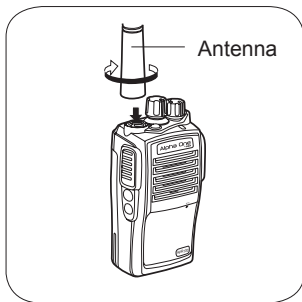
Attaching/Removing the Belt Clip

1. Using a small screwdriver, remove the screws from the back of the radio's chassis.

2. Align the belt clip's screw holes to the radio's chassis. Turn the screw clockwise into the belt clip's screw holes. See Figure 6 below.

3. To remove the belt clip, turn the screwdriver counter-clockwise to loosen the screw. See Figure 6 below.

Antenna

Figure 5

Belt Clip
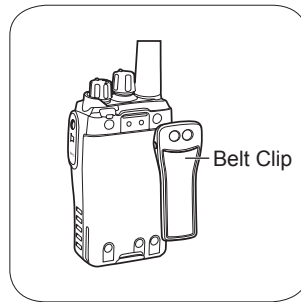
Figure 6

Attaching/Removing the Earpiece/Microphone

1. Remove the accessory cover, as shown in Figure 7.

2. Firmly plug the audio accessory into the accessory jack and secure the screw. See Figure 8.

Warning!! Over-tightening accessories may cause damage to the radio which is not covered under warranty.

3. To remove the audio accessory from the jack, turn the screw counter-clockwise and remove the accessory.

Speaker/Microphone Jack

Figure 7

Speaker/Microphone
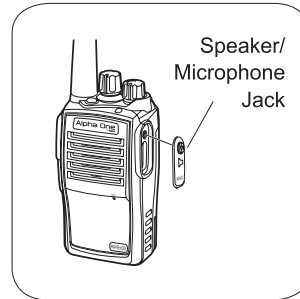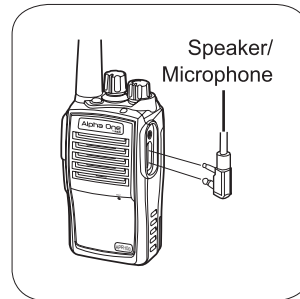
Figure 8

FUNCTIONS AND SETTINGS

The following radio functions can be enabled by your Alpha One™ Sales and Service Center through the radio's programming software.

BUSY CHANNEL LOCKOUT

Avoid interference with other users on the same channel by preventing transmission if another talkgroup is currently speaking over the air. The radio will generate a continuous tone when the PTT is pressed and will not allow a second transmission to "step-on"the current conversation. Releasing the PTT will cancel the tone.

VOX SENSITIVITY

The VOX Sensitivity can be adjusted with selectable levels between 1-9, where 9 is the most sensitive.

TX POWER

The transmit power can be adjusted between low (1 Watt), medium (2 Watt) and high (4 Watt).

SQUELCH LEVEL

The purpose of squelch is to mute audio output from the speaker when no signals are present. Open the squelch to unmute radio speaker. The selectable levels are 0-9.

AUDIO SETTING

Your Alpha One™ two-way radio has optional audio indication consisted of short beeps. The audio indicators can be set as a confirmation of one of the following actions: radio turn on/off or key press.

CHANNEL ANNUNCIATION

When changing channels, the radio will announce the newly selected channel.

Note: If the Audio Indication settings are turned off the Channel Annunciation function will be disabled.

TIME OUT TIMER (TOT)
This limits the amount of time the radio user can continuously transmit on a channel. If the user holds down the PTT longer than the preprogrammed limit, the radio automatically stops transmitting and generates a warning tone until the PTT is released. Your Alpha One Sales and Service Center may program the alert tone that sounds before the TOT timer nearly expires. See Glossary for the definition of Time-out Timer.

CTCSS/DCS
The setting of CTCSS/CDCSS code in transmitting party must match that in the receiving party for the receiver to unmute its output audio. The CTCSS/CDCSS codes can only be set by your Alpha One™ Sales and Service Center using the radio's programming software.

EMERGENCY ALERT
In case of Emergency you may activate the Emergency Function by pressing the Orange Emergency Key on the radio. The radio will send an alert tone to all radios within your talk group.

Note: In order to receive the Emergency Alert all radios must be on the same channel, programmed with the same frequency and CTCSS/CDCSS codes.

BATTERY SAVE
This function is to save battery power and prolong the operation time. Once no activity or operations are occurring on the channel, the radio will be on and off alternately.

ROGER BEEP

Roger Beep is an alert tone emitted by receiving radio at the end of each transmission indicating the end of the call.

SQUELCH TAIL ELIMINATION

This function eliminates the Roger Beep at the end of the transmission.

LOW BATTERY ALERT

For extra convenience, when the battery level is low, the LED flashes red and a low-pitched tone sounds every ten seconds to alert users to recharge the battery.

SIDE KEYS

Your Alpha One™ two-way radio has two programmable side keys, SK1 and SK2. The following functions can be set by your Alpha One™ Sales and Service Center:

■ NONE - No function to be set.

■ MONITOR - when pressed and carrier condition is satisfied the radio unmutes to any incoming call, regardless of CTCSS/CDCSS condition.

■ SCAN ON/OFF

■ Scan ON: Press the programmed side key to activate scanning. The radio will scan all channels within the selected channel list.

■ Scan OFF: Press the side key again to exit the scanning mode.

■ PRIORITY SCAN - when set by your Alpha One™ Sales and Service Center the priority channel the radio will scan the priority channel every other channel while going through the selected scanning list (example: channel 6 is programmed as priority channel, the scanning will look like this: 6-1, 6-2, 6-3•••). Press the programmed side key to enter the priority scan mode.

■ HIGH/ LOW POWER - press the key to switch to High or Low Power setting.

■ TALK AROUND - talk around allows you to communicate directly radio to radio without a repeater. Press the programmed talk around side key to enter the Talk Around mode and press it again to exit.

■ REVERSE - This function reverses the transmit and receive frequencies and CTCSS/CDCSS codes. Press the programmed frequency reverse side key to enter the Reverse mode and press again to exit.

■ VOX ON/OFF - radio will start transmitting when detects voice, without pressing PTT key. Press the programmed frequency reverse side key to activate the function and press again to deactivate.

Note:

■ To use the VOX function, you need an Alpha One™ Certified, VOX capable audio accessory.

■ When using VOX function, you may press the PTT key at any time to exit.

■ Do not turn on the VOX function while in a PTT call. This may cause the radio to transmit constantly. If it happens turn the radio off and back on.

TROUBLESHOOTING

Symptom	Solution
■ Cannot power on the radio	a. The battery needs charging. Recharge the battery or replace it with a fresh one. b. The battery is not properly installed. Remove the battery and reattach it.
■ The operating time is noticeably shorter than normal even though the battery is properly charged.	a. The battery has worn out; it is time to buy a new battery. b. The battery is not fully charged. Make sure that the battery is removed after LED indicator has turned green.
■ Cannot talk to or hear group members	a. Make sure that your radio operates on the same frequency and has the same CTCSS/CDCSS settings as your group members. b. Make sure you are within their communication range.
■ Hearing non-group members	Please change your CTCSS/CDCSS settings and have your group members do so also.
■ No voice or low voice while transmitting	a. Turn the volume control knob to its maximum volume. b. Return the radio to your dealer to check for microphone damage.

CARE AND CLEANING

■ Do not directly handle the radio by its antenna or external microphone.

■ Do not place the radio in a dusty or dirty environment.

■ Clean the radio with a lint-free cloth moistened with clean water and/or a mild dish washing liquid to remove dirt, grease, and dust.

■ Avoid subjecting the radio to corrosives, solvents or spirits.

TECHNICAL SPECIFICATIONS

Frequency Range	136-174MHz V 400-470MHZ U
Operating Temp.	-4°F ~ 122°F (-20°C ~ 50°C)
Number Of Channels	16
Channel Spacing	25KHz
Operating Voltage	7.4V DC
Size (without antenna)	4.5" (114mm) x 2.25" (57mm) x 1.5" (38mm)
Weight (with battery)	About 9 oz. (255g)
Output Power	< 5W
Modulation Distortion	< 5%
Spurious Radiation	< 7.5uW
Sensitivity	< -120dBm
Co-channel Rejection	> -8dB
Audio Distortion	< 5%

OPTIONAL ACCESSORIES

	Standard Capacity Battery **B1013LI - (1300mAh Lithium Battery)** Excellent backup battery.
	Stubby Antenna - Can reduce coverage by approximately 30%. **ANH3500U-3 440-470 – UHF 440-470 MHz 3" Antenna** **ANH3500V-3 136-174 – VHF 136-174 MHz 3" Antenna**
	Standard Antenna **ANH3500U-6 440-470 – UHF 440-470 MHz 6" Antenna** **ANH3500V-6 136-174 – VHF 136-174 MHz 6" Antenna** Standard antenna, gives you maximum coverage.

	## Multi-Unit Rapid-Rate Charger ## CH1006 PKG More convenient and saves space by using one power outlet for 6 radios.
	## Light Duty, Remote Speaker Microphone ## SM110-X03 No need to remove the radio from your waist, which helps prevent radio damage or loss.
	## Medium Duty, Remote Speaker Microphone ## SM220-X03 No need to remove the radio from your waist, which helps prevent radio damage or loss.

OPTIONAL ACCESSORIES continued

	D-Loop Style Surveillance Kit with In-line PTT **SK11DL-X03** Professional, 1-Wire, high quality earpiece ideal for radio users requiring discreet communication.
	Ear Hook Style Surveillance Kit with In-line PTT **SK11EH-X03** Professional, 1-Wire, high quality earpiece ideal for radio users requiring discreet communication.
	In-Ear Style, 1-Wire Surveillance Kit with In-line PTT **SK11NE-X03** Professional, 1-Wire, high quality earpiece ideal for radio users requiring discreet communication.

	Nylon Holsters for Alpha One™ **APR100** HN100FC - Nylon Holster with fixed clip HN100FL - Nylon Holster with fixed belt loop HN100SC - Nylon Holster with swivel clip HN100SL - Nylon Holster with swivel belt loop
	Lightweight Behind-The-Head Headset with In-line PTT HS11V-X03 Durable and inexpensive. Perfect for retail stores, restaurants and bars.
	Lightweight Over-The-Head Headset with In-line PTT HS21V-X03 Durable and inexpensive. Perfect for retail stores, restaurants and bars.

GLOSSARY

■ **Battery Save** - The function is to save battery power and prolong the operation time. Once no activity or operations are occurring on the channel, the radio will be on and off alternately.

■ **Busy Channel Lockout** - Avoid interference with users on same channel by preventing transmission if another talkgroup is already on the air.

■ **CTCSS/ CDCSS** - The setting of CTCSS/ CDCSS code in transmitting party must match that in the receiving party for the receiver to unmute its output audio.

■ **Long Press** - Key press longer than 1.5 seconds

■ **Momentary** - Hold down the Function key to activate the status, and release it to turn it off.

■ **Monitor** - Carrier condition must be satisfied for the radio to unmute to an incoming call, regardless of CTCSS/CDCSS condition.

■ **Scan** - The scan feature enables the radio to continuously scan each channel for activity.

■ **Short Press** - Key press shorter than 1.5 seconds.

■ **Squelch** - The purpose of squelch is to mute audio output from the speaker when no signals are present. Open the squelch to unmute radio speaker.

■ **Squelch Off** - Always unmute speaker to receive audio as well as background noise.

■ **Standby Status** - In normal mode, no key operation is made on the radio and the radio is in receiving status.

■ **Time-out Timer (TOT)** - The time-out timer feature stops someone from talking too long and tying up the channel.

■ **VOX** - The radio will automatically begin transmitting when you speak.

WARRANTY STATEMENT

Your Alpha One™ two-way radio is warrantied to be free from defects in material and workmanship under normal use and service for the time period listed below, provided that the user has complied with the requirements stated herein.

The warranty period begins on the date of purchase from an Authorized Alpha One™ Sales and Service Outlet. This warranty is offered to the original end user and is not assignable or transferable. RCA is not responsible for any ancillary equipment which is attached to or used in conjunction with RCA Communications Systems products.

RCA offers to the original end user a Two (2) Year Limited Warranty on the Alpha One™ APR100 Radio Handset. The APR100 Antenna, APR100 Battery and the APR100 Battery Charger are covered under a One (1) Year Limited Warranty. The APR100 Belt Clip is not covered under the warranty.

During this period, if the product fails to function under normal use because of manufacturing defect(s) or workmanship, it should be returned to the Authorized Alpha One™ Sales and Service Center from which it was purchased. The Sales and Service Center will repair the product to full operating specifications or replace the product with a new product of the same make and model. The user is responsible for all charges incurred in returning the product to the Authorized Alpha One™ Sales and Service Center. RCA will be responsible for all charges in returning the product to the end user via standard ground shipping service.

RCA shall have no obligation to repair or replace the product, if there is damage as a result of normal wear and tear or if the

damage is caused in whole or in part by catastrophe, fault or negligence of the user, improper or unauthorized alterations or repairs to the product, incorrect wiring, use of the product in a manner for which it was not designed, or by causes external to the product. The radio equipment warranty does not cover physical or liquid damage, which includes, but is not limited to, liquid damage, damaged screen, deep scratches, bent or broken body or frame, damaged channel or volume controls, damaged antenna, charging and/or accessory ports. The warranty is also void if the product serial number is altered, defaced or removed.

THE EXPRESS WARRANTIES CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY

MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
FOR ANY PRODUCT WHICH DOES NOT COMPLY WITH THE WARRANTY SPECIFIED, THE SOLE REMEDY WILL BE REPAIR OR REPLACEMENT. IN NO EVENT WILL RCA COMMUNICATIONS SYSTEMS BE LIABLE TO THE BUYER OR ITS CUSTOMERS FOR ANY DAMAGES, INCLUDING ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR THE LOSS OF PROFIT, REVENUE OR DATA ARISING OUT OF THE USE OR THE INABILITY TO USE THE PRODUCT.
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The end-user of any two-way radio is solely responsible for obtaining any license or other authorizations required by the Federal Communications Commission (FCC). For further information visit www.fcc.gov or call 1-888-CALL-FCC (1-888-225-5322).

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits always adhere to the following procedures.

Guidelines:
Do not remove the RF Exposure Label from the device.

User awareness instructions should accompany 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, release the PTT button.

Transmitting 50% of the time, or less, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance). Hold the radio in a vertical position in front of face with the microphone (and the other parts of the radio, including the antenna) at least one inch (2.5 cm) away from the mouth. Keeping the radio at the proper distance is important because RF exposures decrease with distance from the antenna. Antenna should be kept away from eyes.

When worn on the body, always place the radio in a approved clip, holder, holster, case, or body harness for this product.

Using approved body-worn accessories is important because the use of or other manufacturer's non-approved accessories may result in exposure levels, which exceed the FCC's occupational/controlled environment RF exposure limits.

If you are not using a body-worn accessory and are not using the radio in the intended use position in front of the face, then ensure the antenna and the radio are kept at least 1 inch (2.5 cm) from the body when transmitting. Keeping the radio at the proper distance is important because RF exposures decrease with increasing distance from the antenna.

Use only RCA Communications Systems approved supplied or replacement antennas, batteries, and accessories. Use of non-approved antennas, batteries, and accessories may exceed the FCC RF exposure guidelines.

For Sales, Warranty and Customer Support please contact:

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1430 240th Street, Harbor City, CA 90710
Phone: 310-224-5100 / Fax: 310-224-5101
www.DiscountTwo-WayRadio.com