

**BUCKS COUNTY**

**9-1-1**  
**EMERGENCY**

**POLICE - FIRE - EMS**

*APX™ Two-Way Radios*



APX6000XE





Component	Requirement
<b>Computer and processor</b>	Intel® Pentium® II 450MHz or faster processor.
<b>Memory</b>	128 megabytes (MB) of RAM or greater.
<b>Drive</b>	CD-ROM or DVD drive.
<b>Display</b>	Super VGA (800 × 600) or higher-resolution monitor.
<b>Operating system</b>	Microsoft® Windows Vista®. Microsoft Windows XP. Microsoft Windows 2000 with Service Pack 3 (SP3).
<b>Other</b>	Microsoft Office PowerPoint 2003 or above. Adobe Flash Player 9.0 or above.

Adobe Flash Player is required to run demo in this module.

Please download and install Adobe Flash Player from <http://get.adobe.com/flashplayer/>



This declaration is applicable to your radio *only* if your radio is labeled with the FCC logo shown below.

## DECLARATION OF CONFORMITY

Per FCC CFR 47 Part 2 Section 2.1077(a)



### Responsible Party

Name: Motorola Solutions, Inc.

Address: 1303 East Algonquin Road, Schaumburg, IL 60196, U.S.A.

Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: **APX 6000XE**

conforms to the following regulations:

FCC Part 15, subpart B, section 15.107(a), 15.107(d) and section 15.109(a)

### **Class B Digital Device**

As a personal computer peripheral, this device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

**Note:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



## Additional FCC Note to Users

The following FCC information applies to Bluetooth radio options

**Model Name:** MNUK6000

**Description:** APX 6000XE Bluetooth Option Board

**FCC ID:** AZ489FT6000

**IC:** 109U-89FT6000

Conforms to the following regulations: FCC Part 15, Section 15.19, 15.21, and 15.105

**Note:** Changes or modifications not expressly approved by Motorola may void the users authority, as authorized by the FCC, to operate this device and should not be made. See 47 CFR Part 15.21. Information to the user. The user manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. See 47 CFR Part. 15.19(3).

This device has been tested and found to comply with the limits of Part 15.15 of the FCC rules. Parties responsible for equipment compliance should note that the limits specified in this part will not prevent harmful interference under all circumstances.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. See Part 15.105b These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.



However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Industry Canada (IC) Statements:**

This Class B digital apparatus complies with ICES-003 and Radio Standards Specification (RSS) 210.



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This Interactive End User Toolkit (IEUTK) covers the basic operation of the APX™ 6000XE portable radios.

However, your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

## Notations Used in This Tutorial

Throughout the text in this tutorial, you will notice the use of WARNING, Caution, and Note. These notations are used to emphasize that safety hazards exist, and the care that must be taken or observed.



**WARNING**

An operational procedure, practice, or condition, etc., which may result in injury or death if not carefully observed.



**Caution**

An operational procedure, practice, or condition, etc., which may result in damage to the equipment if not carefully observed.

**Note:** *An operational procedure, practice, or condition, etc., which is essential to emphasize.*





# HOME











	Z1	Z2	Z3	Z4	Z5	Z6
1	South Band	8CALL90 CH	TAC 1	SOUTH BAND	FUTURE 1	
2	South FG	8TAC91 TK	TAC 2	SOUTH DIR	FUTURE 2	
3	EMERGENCY	8TAC92 PV	TAC 3	EMERGENCY	FUTURE 3	
4	North Band	8TAC93 LS	TAC 4	NORTH BAND	FUTURE 4	
5	North FG	8TAC94 WR	TAC 5	NORTH DIR	FUTURE 5	
6	East Band	ZONE 1		EAST BAND	FUTURE 6	
7	East FG	ZONE 2		EAST DIR	FUTURE 7	
8	South Band	ZONE 3		SOUTH BAND	FUTURE 8	
9	South FG	ZONE 4		SOUTH DIR	FUTURE 9	
10	Central Band	ZONE 5		CENTRAL BAND	FUTURE 10	
11	Central FG	ZONE 6		CENTRAL DIR	FUTURE 11	
12	FP DIRECT	ZONE 7		FP DIRECT	FUTURE 12	
13	FP NORTH	ZONE 8		FP NORTH	FUTURE 13	
14	FP SOUTH	ZONE 9		FP SOUTH	FUTURE 14	
15	EMS NORTH	DISPATCH		EMS NORTH	FUTURE 15	
16	EMS SOUTH	PROGRAMMING		EMS SOUTH	FUTURE 16	



## ❑ Charging the Battery



### To avoid a possible explosion:

- **DO NOT** replace the battery in any area labeled “hazardous atmosphere”.
- **DO NOT** discard batteries in a fire.

The Motorola-approved battery shipped with your radio is uncharged. Prior to using a new battery, charge it for a minimum of 16 hours to ensure optimum capacity and performance.

**Note:** *When charging a battery attached to a radio, turn the radio off to ensure a full charge.*

## Battery Charger

To charge the battery, place the battery, with or without the radio, in a Motorola-approved charger. The charger’s LED indicates the charging progress; see your charger’s user guide.



## ❑ Attaching/Removing the Battery

With the radio turned off, slide the battery into the radio's frame until side latches click into place.

*To remove the battery, turn the radio off. Squeeze the release latches on the bottom of the battery until the battery releases from the radio. Remove the battery from the radio.*





## ❑ Attaching/Removing the Antenna

With the radio turned off, set the antenna in its receptacle and turn clockwise to attach it to the radio.

*To remove the antenna, turn the antenna counterclockwise.*

*Make sure you turn off the radio first.*







## ❑ Attaching/Removing the Accessory Connector Cover

The accessory connector is located on the antenna side of the radio. It is used to connect accessories to the radio.

**Note:** To prevent damage to the connector, shield it with the connector cover when not in use.

Insert the hooked end of the cover into the slot above the connector.

Press downward on the cover's top to seat it in the slot. Once in place, rotate the thumbscrew clockwise by hand until tight.

To remove the accessory connector cover, rotate the thumbscrew counterclockwise until it disengages from the radio.

If the thumbscrew is too tight, use an Allen wrench to loosen it first.

Rotate and lift the connector cover to disengage it from the radio.





## ❑ Attaching/Removing the Belt Clip

Align the grooves of the belt clip with those of the radio and press upward until you hear a click.

*To remove the clip, use a flat-bladed object to press the belt clip tab away from the radio. Then, slide the clip downward and away from the radio.*

Belt Clip Slot





## ❑ Turning On/Off the Radio

Rotate the **On/Off/Volume Control Knob** clockwise until you hear a click.

If the power-up test is successful, you see **SELFTEST** on the radio's display momentarily, followed by the Home screen.

**Note:** If the power-up test is unsuccessful, you see **Error XX/YY** (XX/YY is an alphanumeric code).

Turn off the radio, check the battery, and turn the radio back on. If the radio fails the power-up test again, record the **Error XX/YY** code and contact your dealer.

**Note:** If the power-up test is successful, but you see **Hw Board Absent** or **HW Board Mismatch**. Then, send the radio to the qualified technician to fix this error.

To turn off the radio, rotate the **On/Off/Volume Control Knob** counterclockwise until you hear a click.

**Any issues, please call our tech dept. for assistance!**





## □ Adjusting the Volume

To increase the volume, turn the **On/Off/Volume Control Knob** clockwise.

*To decrease the volume, turn this knob counterclockwise.*

**Note:** *Ensure that the main speaker is pointed towards you for increased loudness and intelligibility, especially in areas with loud background noises.*





## □ Accessing the Preprogrammed Functions

You can access various radio functions through a short or long press of the relevant programmable buttons.





## ❑ Push-To-Talk (PTT) Button

The **PTT button on the side** of the radio serves two basic purposes:

- While a call is in progress, the **PTT button** allows the radio to transmit to other radios in the call.

Press and hold down **PTT** button to talk. Release the **PTT button to listen.**

The microphone is activated when the **PTT** button is pressed.

- While a call is not in progress, the **PTT button** is used to make a new call.





## □ Status Icons

The 112 x 32 pixel top monochrome display screen of your radio shows the radio status and operating conditions.



### Battery

The number of bars (0 – 4) shown indicates the charge remaining in the battery. Blinks when the battery is low.



### Received Signal Strength Indicator (RSSI)

The number of bars displayed represents the received signal strength for the current site, for trunking only. The more stripes in the icon, the stronger the signal.



### Direct

- **On** = Radio is currently configured for direct radio-to-radio communication (during conventional operation only).
- **Off** = Radio is connected with other radios through a repeater.



### Power Level

- **L** = Radio is set at Low power.
- **H** = Radio is set at High power.



### Scan

Radio is scanning a scan list.



### Priority Channel Scan

- **Blinking dot** = Radio detects activity on channel designated as Priority-One.
- **Steady dot** = Radio detects activity on channel designated as Priority-Two.

Continues on next page



## ❑ LED Indicator

The LED indicator shows the operational status of your radio.

**Solid red** – Radio is transmitting.

**Blinking red** – Radio is transmitting at low battery condition.

**Double blinking red** – Radio is in Emergency Mode.

**Rapidly blinking red** – Radio has failed the self test upon powering up or encountered a fatal error.

**Solid yellow** – Channel is busy (Conventional only).

**Blinking yellow** – Radio is receiving a secured transmission.

**Solid green** – Radio is powering up, or is on a non-priority channel while in the Scan List Programming mode.

**Blinking green** – Radio is receiving an individual or telephone call, or is on a Priority-Two channel while in the Scan List Programming mode.

**Rapidly blinking green** – Radio is on a Priority-One channel while in the Scan List Programming mode.

**Note:** No LED indication when the radio receives a clear (non-secured) transmission in trunking Mode.







## □ Intelligent Lighting Indicators

This feature temporarily changes the backlight of the display screen and the keypad, and adds a color bar to the main display screen to help signal that a radio event has occurred.

**Note:** This feature must be preprogrammed by a qualified radio technician.

Backlight and Bar Color	Notification	When
<b>Orange</b>	Emergency Alerts	The radio initiates an emergency alarm or call.
		The radio receives an emergency alarm or call.
		The radio initiates the Man Down Post-Alert timer.
<b>Red</b>	Critical Alerts	The radio battery is low.
		The radio is out of range.
		The radio enters fail-soft mode.
		The radio is unable to establish a full connection with the system.
		The radio is unable to authenticate or register with the system.
<b>Green</b>	Call Alerts	The radio receives a private call.
		The radio receives a phone call.
		The radio receives a call alert.
		The radio receives a selective call.



**Orange**  
Emergency Alerts





**Red**  
Critical Alerts






## Alert Tones


An alert tone is a sound or group of sounds. Your radio uses alert tones to inform you of your radio's conditions. The following table lists these tones and when they occur.

You Hear	Tone Name	Heard
<b>Short, Low-Pitched Tone</b>   <b>Play</b>	Radio Self Test Fail	When radio fails its power-up self test.
	Reject	When unauthorized request is made.
	Time-Out Timer Warning	Four seconds before time out.
	No ACK Received	When radio fails to receive an acknowledgment.
	Individual Call Warning Tone	When radio is in an individual call for greater than 6 seconds without any activity.
<b>Long, Low-Pitched Tone</b>   <b>Play</b>	Time-Out Timer Timed Out	After time out.
	Talk Prohibit/ <b>PTT</b> Inhibit	(When <b>PTT</b> button is pressed) transmissions are not allowed.
	Out of Range	(When <b>PTT</b> button is pressed) the radio is out of range of the system.
	Invalid Mode	When radio is on an unpreprogrammed channel.



You Hear	Tone Name	Heard
<p><b>A Group of Low-Pitched Tones</b></p>  <p><b>Play</b></p>	<p>Busy</p>	<p>When system is busy.</p>
<p><b>Short, Medium-Pitched Tone</b></p>  <p><b>Play</b></p>	<p>Valid Key-Press</p>	<p>When a valid key is pressed.</p>
	<p>Radio Self Test Pass</p>	<p>When radio passes its power-up self test.</p>
	<p>Clear Voice</p>	<p>At beginning of a non-coded communication.</p>
	<p>Priority Channel Received</p>	<p>When activity on a priority channel is received.</p>
	<p>Emergency Alarm Entry</p>	<p>When entering the emergency state.</p>
	<p>Central Echo</p>	<p>When central controller has received a request from a radio.</p>
<p><b>Long, Medium-Pitched Tone</b></p>  <p><b>Play</b></p>	<p>Volume Set</p>	<p>When volume is changed on a quiet channel.</p>
	<p>Emergency Exit</p>	<p>When exiting the emergency state.</p>



You Hear	Tone Name	Heard
<p data-bbox="112 287 363 404"><b>A Group of Medium-Pitched Tones</b></p>  <p data-bbox="204 558 272 589"><b>Play</b></p>	Fail-soft	When the trunking system fails.
	Automatic Call Back	When voice channel is available from previous request.
	Talk Permit	(When <b>PTT</b> button is pressed) verifying system accepting transmissions.
	Keyfail	When encryption key has been lost.
	Console Acknowledge	When status, emergency alarm, or reprogram request ACK is received.
	Received Individual Call	When Call Alert or Private Call is received.
<p data-bbox="137 808 336 929"><b>Short, High-Pitched Tone (Chirp)</b></p>	Low-Battery Chirp	When battery is below preset threshold value.



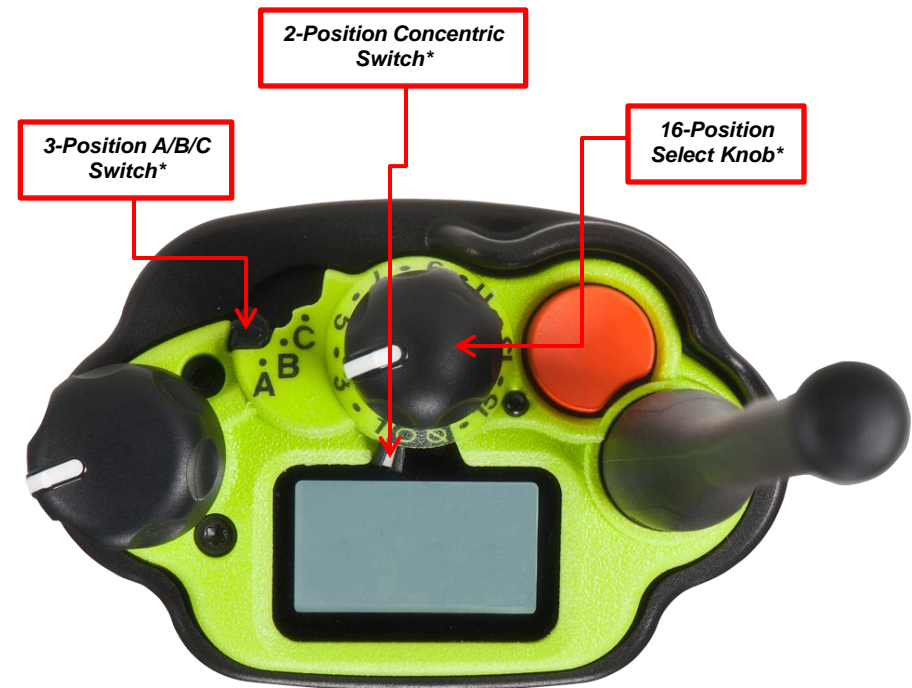
## ❑ Selecting a Zone

A zone is a group of Talkgroups.

Use the following procedure to select a zone.

### Procedure:

- 1 To advance to the additional Zones press the **SIDE TOP BUTTON (Purple)**
- 2 Press the **PTT** button to transmit on the displayed zone channel.





## ❑ Selecting a Radio Talkgroup

A Talkgroup is a group of radio characteristics, such as transmit/ receive frequency pairs.

Use the following procedure to select a channel.

### Procedure:

- 1 Turn the preprogrammed **16-Position Select** knob to the desired Talkgroup.
- 2 Press the **PTT** button to transmit on the displayed zone channel.





## ❑ Receiving and Responding to a Radio Call

Once you have selected the required channel and/or zone, you can proceed to receive and respond to calls.

The LED lights up solid red while the radio is transmitting. In conventional mode, the LED lights up solid yellow when the radio is receiving a transmission. In trunking mode, there is no LED indication when the radio receives a transmission.

If the radio is receiving a secure transmission, the LED blinks yellow.







## ❑ Receiving and Responding to a Radio Call

### Receiving and Responding to a Talkgroup Call

To receive a call from a group of users, your radio must be configured as part of that talkgroup.

#### Procedure:

When you receive a talkgroup call (while on the Home screen), depending on how your radio is preprogrammed:

#### 1 ASTRO Conventional Only:

*The LED lights up solid yellow.*

*The display shows the caller alias or ID.*

**OR**

#### Trunking Only:

*The display shows the caller alias or ID.*

2 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

Press the **PTT** button to respond to the call.

*The LED lights up solid red.*

Release the **PTT** button to listen.





## □ Making a Radio Call

You can select a zone, talkgroup by using:

- The preprogrammed Zone switch
- The Talkgroup Selector Knob



## □ Scan Lists

Scan lists are created and assigned to individual channels/ groups. Your radio scans for voice activity by cycling through the channel/group sequence specified in the scan list for the current Talkgroup.





## Scan

### Turning Scan On or Off

#### Procedure:

1 Press the preprogrammed Scan button. *The display shows **SCAN ON** and the scan icon, indicating that scan is enabled.*

**OR**

*The display shows **SCAN OFF**, indicating that scan is disabled.*





## Scan

### Deleting a Nuisance Channel

If a channel continually generates unwanted calls or noise (termed a “nuisance” channel), you can temporarily remove the unwanted channel from the scan list.

This capability does not apply to priority channels or the designated transmit channel.

**Note:** Deleting a “nuisance” channel is only possible through the preprogrammed **Nuisance Channel Delete** button. This feature is not accessible through the menu.

#### Procedure:

- 1 When the radio is locked onto the channel to be deleted, press the preprogrammed Nuisance Delete button. The radio continues scanning the remaining channels in the list.





## Scan

### Restoring a Nuisance Channel

#### Procedure:

To restore the deleted nuisance channel, do one of the following:

- Turn the radio off and then turning it on again.  
**OR**
- Stop and restart a scan via the preprogrammed **Scan** button or menu.  
**OR**
- Change the channel via the **16-Position Select** knob.





## □ Emergency Operation

The Emergency feature is used to indicate a critical situation. If the **Top (Orange)** button is preprogrammed to send an emergency signal, this signal overrides any other communication over the selected channel.

Your radio supports the following Emergency mode:

- *Emergency Alarm with Emergency Call*

**Note:** To exit emergency at any time, press and hold the preprogrammed Emergency button for about a second.  
**(IN DIRECT MODE ONLY)**





## □ Emergency Operation

### Sending an Emergency Alarm with Emergency Call

#### Procedure:

- 1 Press the preprogrammed **Emergency** button.

*The display shows **EMERGENCY** and the current zone or channel.*

*A short, medium-pitched tone sounds and the LED momentarily blinks red.*

- 2 The radio enters the **Emergency Call** state when you press the **PTT** button while in the **Emergency Alarm** mode.

- 3 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.

Press and hold the **PTT button**.

Speak clearly into the microphone.

Release the **PTT** button to end the transmission and wait for a response from the dispatcher.

- 4 Press and hold the preprogrammed **Emergency** button for about a second to exit the **Emergency Call** mode when in DIRECT MODE. (i.e. on analog FG channels)





## ❑ Trunking System Controls

### Using the Fail-soft System

The fail-soft system ensures continuous radio communications during a trunked system failure.

If a trunking system fails completely, the radio goes into fail-soft operation and automatically switches to its fail-soft channel.

#### Procedure:

- 1 During fail-soft operation, your radio transmits and receives in conventional operation on a predetermined frequency.
- 2 A medium-pitched tone sounds every 10 seconds and the display shows **FAILSOFT**.

*When the trunking system returns to normal operation, your radio automatically leaves fail-soft operation and returns to trunked operation.*





## ❑ Trunking System Controls

### Going Out of Range

When your radio goes out of the range of the system, it can no longer lock onto a control channel.

#### Procedure:

1 A low-pitched tone sounds.

#### AND/OR

The display shows the currently selected zone/channel combination and **OUT RNG**.

2 Your radio remains in this out-of-range condition until:

It locks onto a control channel.

#### OR

It locks onto a fail-soft channel.

#### OR

It is turned off.





## ❑ Trunking System Controls

### Using the Site Trunking Feature

If the zone controller loses communication with any site, that site reverts to site trunking.

*The display shows the currently selected zone/channel combination and **STE TRNK**.*

**Note:** *When this occurs, you can communicate only with other radios within your trunking site.*





## □ Utilities

### Using the Time-Out Timer

This feature turns off your radio's transmitter. You cannot transmit longer than the preset timer setting.

If you attempt to do so, the radio automatically stops your transmission, and you hear a talk-prohibit tone.

The timer is defaulted at 60 seconds, but it can be preprogrammed from 3 to 120 seconds, in 15-second intervals, or it can be disabled entirely for each radio mode, by a qualified radio technician.

**Note:** *You will hear a brief, low-pitched, warning tone four seconds before the transmission times out.*

#### **Procedure:**

- 1** Hold down the **PTT** button longer than the preprogrammed time.  
*You hear a short, low-pitched warning tone, the transmission is cut-off, and the LED goes out until you release the **PTT** button.*
- 2** Release the **PTT** button. The timer resets.
- 3** Press the **PTT** button to re-transmit. The time-out timer restarts and the LED lights up solid red.