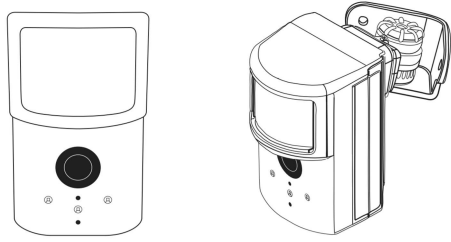


Alarm.com Image Sensor Version 3 - Interlogix

Installation Guide



PRODUCT SUMMARY & TECHNICAL SPECIFICATIONS

The Image Sensor is a pet immune PIR (passive infrared) motion detector with a built-in camera designed to capture images during alarm or non-alarm events when motion is detected.

Product Features:

- Communicates wirelessly to the security control panel
- 35 foot detection range with a 90 degree horizontal FOV-ALR
- Configurable PIR sensitivity and pet immunity settings
- Image: VGA 640x480 pixels
- Color Images (except in night vision)
- Night vision image capture with infrared flash (black & white)
- Tamper detection, walk test mode, supervision
- All systems can support up to three Image Sensors
- UL 639 certified

Technical Specifications:

- **Alarm.com Model Number:** ADC-IS-300-LP
- **Interlogix Part Numbers:**
- **Power Source:** Recommended 2 AA 1.5v Energizer Ultimate Lithium Batteries.
- **Batteries:** Refer to the Batteries section for details
- **Operating Temperature Range:** 32° to 110°F for non-pet applications, 60° to 110°F for pet applications.
- **Weight:** 3.1 oz. (with batteries and without mounting accessories)
- **Dimensions:** 3.1" h x 1.8" w x 2.3" d
- **Supervisory Interval:** 100 minutes (sensor), 3 hours (alarm hardware)
- **Wireless Signal Range:** Greater than 400 ft open air
- **Color:** White
- **Recommended Mounting Height and Angle:** Refer to the Recommended Install Height and Angle Table
- **Motion Profiles & Sensor Range:** Refer to the PIR Sensitivity Settings Table

HARDWARE COMPATIBILITY REQUIREMENTS – By Panel

Panel	Panel Version	Module Firmware	Extra Hardware	Other
Simon XT	V1.3+	Firmware 146+	Requires Image Sensor Daughterboard for modules with firmware 185 or lower. Compatible with all daughterboard versions.	Daughterboard will take one zone
Simon XTi	V1.0+	Firmware 151+		No
Concord	4.0+	CDMA – v177+ HSPA – v183+	Requires daughterboard with v104.0+	All Image Sensors must be enrolled in same partition.

OTHER FEATURE COMPATIBILITY

Two-Way Voice Compatibility - Images cannot be transmitted while a Two-Way Voice call is in session. When the Image Sensor is installed on a system with Two-Way Voice over the cellular network, image transmission during an alarm may be interrupted by the two-way session. The image transmission resumes once the call has terminated.

Simon XT 2WTTTS Compatibility - When using a Two Way Talking Touchscreen with the Simon XT panel, Image Sensor activity during alarms is reported or visible on the touchscreen. When alarms are tripped on an enrolled Image Sensor, the alarms are reported and displayed on the 2WTTTS through the sensor 39 hardwire zone. Periodic activations on hardwire zone 39 will appear on the touchscreen as a result of the hardwire supervisions.

PET IMMUNITY SETTINGS

Two parts to making the Image Sensor pet immune:

1. Set PIR sensitivity settings to "low",
2. Mount set at a height of 6 ft, and install the sensor with the 6 degree mounting angle.

BATTERIES

Battery type: The Image Sensor uses 2 AA 1.5v Energizer Ultimate Lithium batteries (UL compliant).

Expected Battery Life: Approximately 4 years with lithium batteries.

Voltage Thresholds: With lithium batteries, low battery alerts are issued at 3.05V. The sensor cannot operate when the voltage reads below 2.30V.

Low Battery Notification: Panel will display a low battery alert for the sensor and/or notifications are issued via the Alarm.com platform if the customer has subscribed to this notification type.

Replacing batteries: To replace the sensor batteries, slide the front of the sensor up off the sensor-back. Dispose of used batteries per the battery manufacturer instructions and following local regulations.

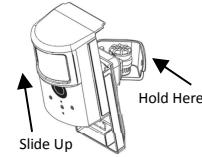
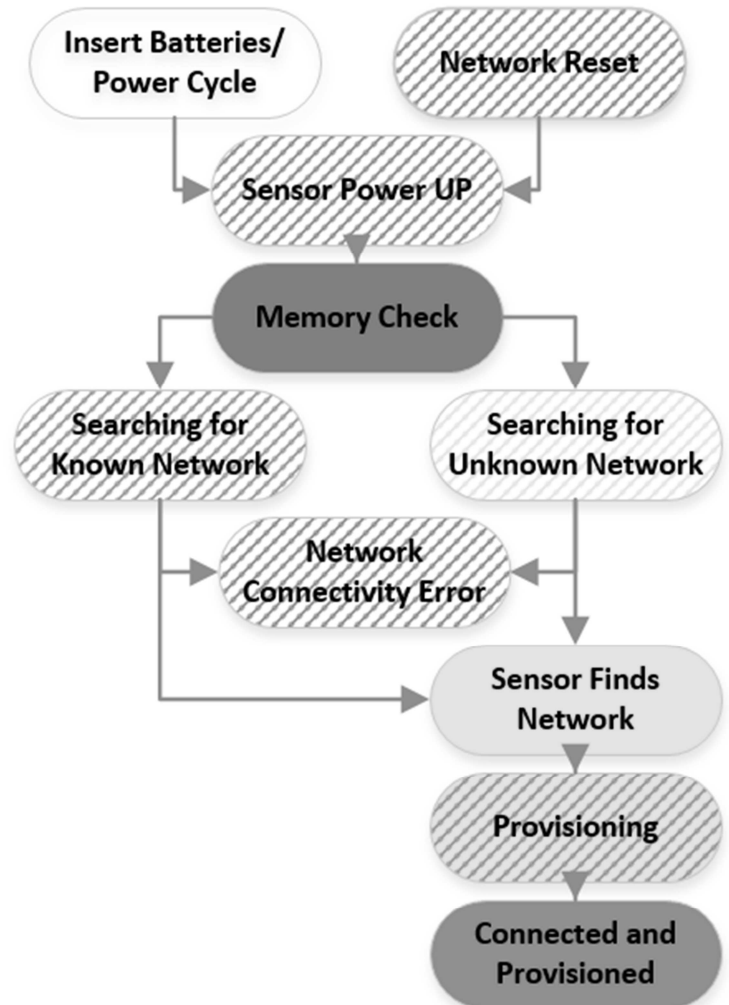


Figure 1. Removing Sensor for Battery Replacement

CAMERA LED REFERENCE CHART

Camera LED Chart: Refer to this chart to understand the camera LED patterns.

Device Status or Error	LED	Pattern	Duration of LED Pattern
Device & Network State			
Sensor Power Up	Red	Blinking	3 seconds
Memory Check	Red	Solid	10 seconds
Searching for Unknown Network	Yellow	Blinking	2 minutes
Searching for Known Network	Green	Blinking	2 minutes
Sensor Finds Network	Yellow	Solid	5 seconds
Provisioning	Yellow & Green	Alternating blinks	5-minute timeout
Connected and Provisioned	Green	Solid	5 seconds
Device Reset			
Network Reset	Red	Blinking (fast)	Hold the reset button for ten seconds OR until the LED flashes rapidly.



RESETTING THE IMAGE SENSOR

There are two ways to reset the Image Sensor:

- **Power Cycle** – Power Cycle can be done by one of two ways: (1) Take out and reinsert batteries or (2) press and release the sensor reset button. Only press the reset button if no LED have been active in the last 10 seconds. After a power cycle the behavior of the Image Sensor will enter sensor power up state followed by the memory check state
- **Network reset** - Press and hold a full 10 seconds or until the sensor red LED flashes rapidly to reset the sensor and clear it from its network. Release as soon as you see the rapid flashing. You must do a network reset prior to enrolling an Image Sensor in a new network. You must verify that the Image Sensor is first deleted from the panel it was previously learned into before you can do a network reset on the Image Sensor. See instructions on how to properly delete the Image Sensor from the panel. A network reset will only work if the Image Sensor is **not** actively communicating with a network. After releasing the reset button, the Image Sensor will enter sensor power-up mode (blinking red LED) followed by memory check (solid red LED) followed by either a blinking green or blinking yellow light. Blinking green means still enrolled in active network. Blinking yellow means the Image Sensor is no longer enrolled in a network and is actively looking for a panel in learn mode. See Camera LED Reference Chart for full list of status indicators and expected behavior after successful network reset has occurred.



Figure 2. Sensor Reset Button

PIR ACTIVATION & TEST MODE

By default, the image sensor LED does not illuminate when activated by motion unless the sensor is in test mode. The LED can be enabled by tampering the device, via the Alarm.com Dealer Website, or on the panel for each Image Sensor on a customer's account. The Image Sensor must have successfully completed the enrollment process with a panel. When enabled, the red LED illuminates for 3 seconds upon motion activations (at most every 3 minutes while disarmed).

Instructions to activate on the panel (*Note: It may take up to 30 seconds for test mode to take effect after requesting "Test PIR" at the panel:*)

- **On the XT panel**, go to "Image Sensor Setup" menu and scroll to "Image Sensor Settings". Enter "Image Sensor Settings" and scroll to the sensor to test, press "OK." Scroll to "Image Sensor [y] Test PIR," and press OK to put the device in test mode.
- **On the XTi panel**, enter the "Test" menu under "Image Sensor" and press "PIR". The screen will display a confirmation to indicate the test mode command has been sent.
- Test mode cannot be activated from the Concord panel.

TAMPER & TROUBLE CONDITIONS

Tamper: A built-in accelerometer detects movement or re-positioning of the Image Sensor and will initiate a tamper whenever a change in sensor orientation is detected. The tamper automatically clears after the sensor is returned to the upright position and no movement has been detected for 5 minutes. A tamper can also be cleared by resetting the sensor.

Trouble Conditions: By default, trouble conditions (malfunction, tamper & low battery) are displayed on the panel LCD. Enable or disable trouble condition messages on the control panel LCD via the Alarm.com Dealer Website. Trouble conditions are always reported to the Alarm.com Customer Website and customers will receive tamper/low/malfunction notifications if they are subscribed, regardless of the panel setting.

SERVICE PLANS REQUIREMENTS

Image capture features require a service plan that includes one of the following Image Sensor add-ons:

- **Images - Alarms** - Includes upload of images from alarm events only.
- **Images - Plus** - Includes upload of images from alarm events and non-alarm events

HARDWARE INSTALLATION

1. **Create Alarm.com Customer Account** - Select service plan (see Service Plan Requirements) and register the Alarm.com module serial number on the Alarm.com Dealer Website.
2. **Install Image Sensor Daughterboard if necessary.** – First check Hardware Compatibility to verify if module needs a daughterboard. If it does, see Daughterboard Install Guide for daughterboard installation instructions.
Install Alarm.com Module inside Control Panel
4. **Register Module and Test** - Power up the panel and initiate a comm-test to ensure the Alarm.com module is properly installed and communicating with the Alarm.com NOC.
5. **Enroll Sensor in Panel** – Instructions specific by pane

Simon XT

- a. Begin with the batteries removed from the sensor.
- b. On panel go to "System Programming" > Enter installer code (default 4-3-2-1) > Select "Interactive Services" > Select "Image Sensor Setup" > Select "Image Sensor Learn Mode" > Screen should display "Power up or set I. S. Mode".
- c. Insert the batteries into the sensor. Wait (approximately 20 seconds) for the control panel screen to display: "I.S. [x] Added as Sensor [y]." The LED should follow the following sequence: blinking red > blinking yellow > solid yellow > alternating yellow and green > solid green. You may see a red blink after the solid green which means the sensor is in PIR test mode. See the Camera LED Reference Chart for more details.
- c. Perform another panel comm-test to be sure that Alarm.com receives the updated device equipment list. This will speed up the sensor initialization process.

The sensor is now learned into the panel. Sensors are enrolled in group 17 by default. To change the sensor group, use the Sensors menu in System Programming. Image Sensors may be enrolled in groups 15, 17, 20, or 25. (No chime issued for group 25.) On the Simon XT a mix of sensor groups 15/17 and 20 are not supported. If Image Sensors are in group 15 or 17, they cannot also be in group 20, and vice versa. After enrollment, be sure to keep the sensor and panel powered so the sensor can complete an initialization process with the Alarm.com Network Operations Center. This process will take several minutes. Images cannot be captured until initialization is complete. Check by verifying if the rules are confirmed on the dealersite or MobileTech.

Simon XTi

- a. Begin with the batteries removed from the sensor.
- b. On the panel, scroll until the screen shows "Programming" > Enter installer code (default 4-3-2-1) > Select "Interactive Services" > Select "Image Sensor" > Select "Add" > The screen will display "Reset or power-up sensor to enroll..."
- c. Insert the batteries into the sensor. Wait (approximately 20 seconds) for the control panel screen to display: "IS[x] successfully added as sensor [y]." The LED should follow the following sequence: blinking red > blinking yellow > solid yellow > alternating yellow and green > solid green. You may see a red blink after the solid green which means the sensor is in PIR test mode. See the Camera LED Reference Chart for more details.
- d. Perform another panel comm-test to be sure that Alarm.com receives the updated device equipment list. This will speed up the sensor initialization process.

The sensor is now learned into the panel. Sensors are enrolled in group 17 by default. To change the sensor group, use the Sensors menu in Programming. Image Sensors may be enrolled in groups 15, 17, 20, or 25. (No chime issued for group 25.) After enrollment, be sure to keep the sensor and panel powered so the sensor can complete an initialization process with the Alarm.com Network Operations Center. This process will take several minutes. Images cannot be captured until initialization is complete. Check by verifying if the rules are confirmed on the dealersite or MobileTech.

Concord

- a. Install Image Sensor Daughterboard – See Daughterboard Install Guide for more details.
- b. Connect Daughterboard Alarm Wire – See Daughterboard Install Guide for more details.
- c. Register Module and Test - Power up the panel and initiate a comm-test to ensure the Alarm.com module is properly installed and communicating with the Alarm.com NOC.
- d. To begin enrolling Image Sensor on panel - Begin with the batteries removed from the sensor and ensure the panel is not in System Programming.
- e. Press button on IS daughterboard to enter 'Add Mode.' The green LED "Z2" will start a 4-blink pattern indicating that the daughterboard is in 'Add Mode'.
- f. Reset or insert the batteries into the image sensor. "Z2" LED on the daughterboard will be solid for 60 seconds to indicate that the sensor has been added. On the Image Sensor, The LED should follow the following sequence: blinking red > blinking yellow > solid yellow > alternating yellow and green > solid green. You may see a red blink after the solid green which means the sensor is in PIR test mode. See the Camera LED Reference Chart for more details.

Note: The Image Sensor WILL NOT show in the panel's sensors menu as occupying a panel zone, but the zone must be reserved for the Image Sensor. It is enrolled starting with zone 92 and counts down. The Alarm.com Dealer Site equipment list will show the Image Sensor in its enrolled zone. By default, the sensors are enrolled in partition 1 and group 17. During step 6, the Image Sensors will be re-assigned to follow the partition and group of the hardware.

- g. To begin enrolling Image Sensor Alarm Hardwire in panel - Enter sensor enrollment menu in System Programming.
- h. Select the partition number, zone number, and sensor group for the hardwire.
- i. Trip daughterboard hardware by pressing button on top of daughterboard. The red LED "Z1" on daughterboard will turn off when pressed.
- j. Exit system programming. The Image Sensors will now be assigned to the group and partition of the hardwire.
- k. Perform another panel comm-test to be sure that Alarm.com receives the updated device equipment list. This will speed up the sensor initialization process.

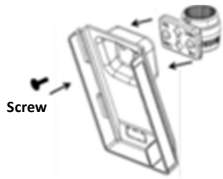
Image Sensors may be enrolled in groups 15, 17, 20, or 25. The Image Sensors must follow the partition and group of the alarm hardware and cannot be individually configured. After enrollment, be sure to keep the sensor and panel powered so the sensor can complete an initialization process with the Alarm.com Network Operations Center. This process will take several minutes. Images cannot be captured until initialization is complete. Check by verifying if the rules are confirmed on the dealersite or MobileTech.

6. Mount Sensor

a. Determine the desired mounting angle – 3 options

Option 1: 12° angle – Straight on the wall without bracket	
	Option 2: 6° angle – Shallow
	<input type="radio"/> Teeth up orientation
	<input type="radio"/> 35 ft coverage
	<input type="radio"/> Pet immunity
	Option 3: 18° angle – Deep
	<input type="radio"/> Teeth down orientation
	<input type="radio"/> Recommended for smaller rooms

- b. Screw bracket to back plate.



c. Determine location to mount sensor.

Recommended Install Height and Angle Table:

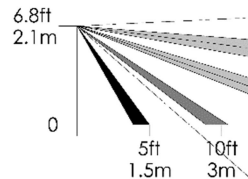
DELETING IMAGE SENSOR FROM PANEL

Instructions on how to properly delete and Image Sensor from a system. It is important to do the steps in order.

1. Delete the Image Sensor from the panel via Interactive Services, Dealersite or MobileTech.
2. Perform a network reset of the Image Sensor. Seeing instructions on how to network reset an Image Sensor. You will only be able to do this after you've completed step 1.

PIR Lens and Camera Coverage Diagrams

Settings	Angle	Mounting height
Pet Immunity	6° angle – Shallow	6 ft
Larger rooms	6° angle – Shallow	8 ft
Smaller rooms	18° angle - Deep	8 ft

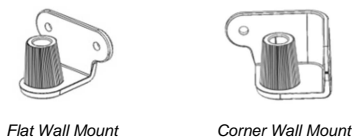


Best Practices for Image Sensor Installation: Do's and Don'ts

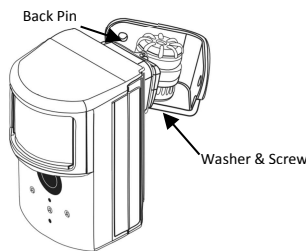
- Do:**
- Target capture areas should be centered in the frame
 - Try to enroll and install within 100 ft of panel. Installation site conditions can reduce range considerably.
 - Make sure people are walking across the sensor coverage as oppose to walking directly towards the sensor.

- Do NOT:**
- Do not set on flat surface.
 - Do not set sensor across from mirrors or reflective surfaces.
 - Do not face sensor toward or close to areas that have metallic objects or electronics to avoid interference with RF communication.
 - Do not install in area where there are obstructions in front of or around the camera lens within 90 degrees and 2 ft around sensor (i.e. walls and ceilings in camera field-of-view). This will result in washed out night captures.
 - Do not install outdoors. The device is for indoor use only. (For proper operation in pet immune applications, the room should be kept between 60° and 110° F.)
 - Avoid backlit conditions (i.e. facing window or other light source) since it may result in poor image quality.

d. **Choose applicable mounting bracket.** The sensor hardware packet contains two mounting brackets for different mounting scenarios. Use the provided large screws and anchors to attach the bracket to the wall. (Leave at least 3 inches of clearance above the sensor to allow for battery replacement without uninstalling the mounting bracket.)



- e. **Place sensor with arm on mounting bracket.** Adjust the horizontal positioning of the sensor to point towards the desired coverage area.
- f. **Secure the mounting arm location** by sliding lock pin into the hole. Use the washer and remaining small screw to secure the lock pin by screwing upwards through the bottom of the hole in the mounting bracket.



g. **Set PIR Sensitivity Settings** – 3 options that can be set through the panel or on the dealersite:

PIR Sensitivity Settings Table

Normal	Default setting
High	More sensitive motion profile with potential higher risk of false alarm.
Low	Less sensitive profile with pet immunity for pets up to 40 lbs

9. Verify and Test Image Sensor Setup

- a. Verify that rules are confirmed via the dealersite or on MobileTech, Resend rules if they are not confirmed.
- b. Verify RF Coverage by checking that the signal strength is above 40%. The signal strength must be greater than 30% for sensor to function properly.
- c. Conduct walk test - To conserve the customer's monthly image upload quota, automatic alarm uploads are disabled for the first four hours after any new sensor (Image Sensor or other) is installed into the system. Installers can also test by requesting image uploads and motion image uploads via MobileTech. Installers are required to be onsite to test by running a comm test at the panel.
- d. Test night captures.

Figure 3.Side View: PIR Lens Coverage

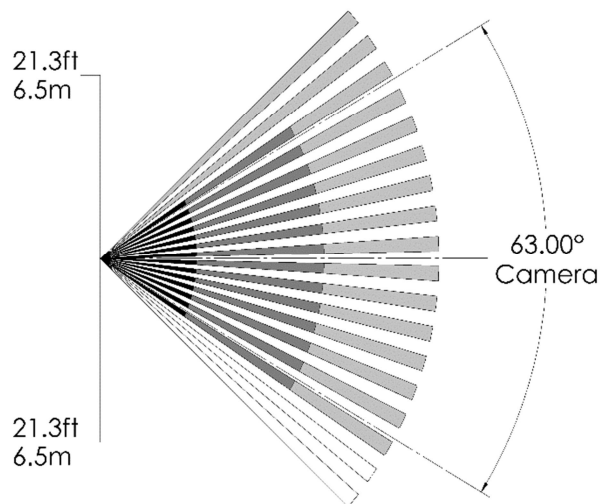


Figure 4.Top View: PIR Lens Coverage

As indicated in Figure 4, the camera coverage area is narrower than the PIR coverage area. When installing, mount sensor where subjects are likely to be centered in or across PIR and camera field of view.

TROUBLESHOOTING

General Troubleshooting Steps

- Verify Module Signal Strength**
- Verify Image Sensor RF Signal Strength:** The signal strength must be above 30% for the sensor to function properly.
- Verify Images Service Plan:** Image capture functionality depends on the customer's service plan. Be sure the proper Image Sensor service plan is selected.

Enrollment

- Verify Sensor is Receiving Power:** After inserting batteries, the sensor LED should illuminate or flash within 10 seconds.
- Verify Sensor is Not Communicating with Another Network:** If the sensor has been previously enrolled in a different system or daughterboard, delete the sensor from the system and hold the sensor reset button for 10 seconds to clear the sensor from old network before attempting to enroll the sensor in a new network. The sensor cannot be cleared if it is currently communicating with its network. In this case the sensor must be deleted from the system first through the control panel or remote command.

Sensor Non-Responsive

- Verify Range:** Under the "Image Sensor Setup" menu, scroll to "Image Sensor Settings," select the sensor and verify under "Signal" that the sensor is registering a strong signal. If signal strength is low, move non-responsive sensor closer to control panel, verify signal strength and see if communication resumes. Be sure that Image

Sensor daughterboard antenna is correctly routed as indicated in step 5 of the installation procedure.

- ☑ **Replace Batteries:** Check battery level at the panel (under "Image Sensor Settings") and install fresh sensor batteries.

Images Not Captured

- ☑ **Verify Sensor Rules:** Make sure the sensor initialization process has been completed. On the Dealer Website, verify rules have been confirmed using the "Rules Confirmed" column. If not, resend Image Sensor rules.
- ☑ **Enable Auto Uploads:** During the first four hours after any sensor is enrolled onto the system, alarm images will not automatically be uploaded to Alarm.com. Automatic uploads are automatically enabled after four hours. Enable uploads sooner from the Dealer Website.

False Motion Activations

- ☑ **Check Environmental Elements:** Heating or cooling elements may adversely affect sensor performance. Test sensor with and without these elements to determine interference. Check if there are any reflective surfaces facing the device (e.g. mirror).
- ☑ **Check Sensor Positioning:** The sensor may not be properly positioned to capture the desired motion. Check horizontal positioning of sensor and re-mount as necessary.
- ☑ **Check PIR Sensitivity Setting:** Verify that the proper sensor motion profile has been selected through the setup menu or select a less sensitive profile.

REGULATORY INFORMATION

Changes or modifications not expressly approved by Alarm.com can void the user's authority to operate the equipment.

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:

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

This equipment complies with the FCC and ISED Canada RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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.

This device must not be collocated or operating in conjunction with any other antenna or transmitter.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC ID:YL6-143IS300 IC: 9111A-143IS300