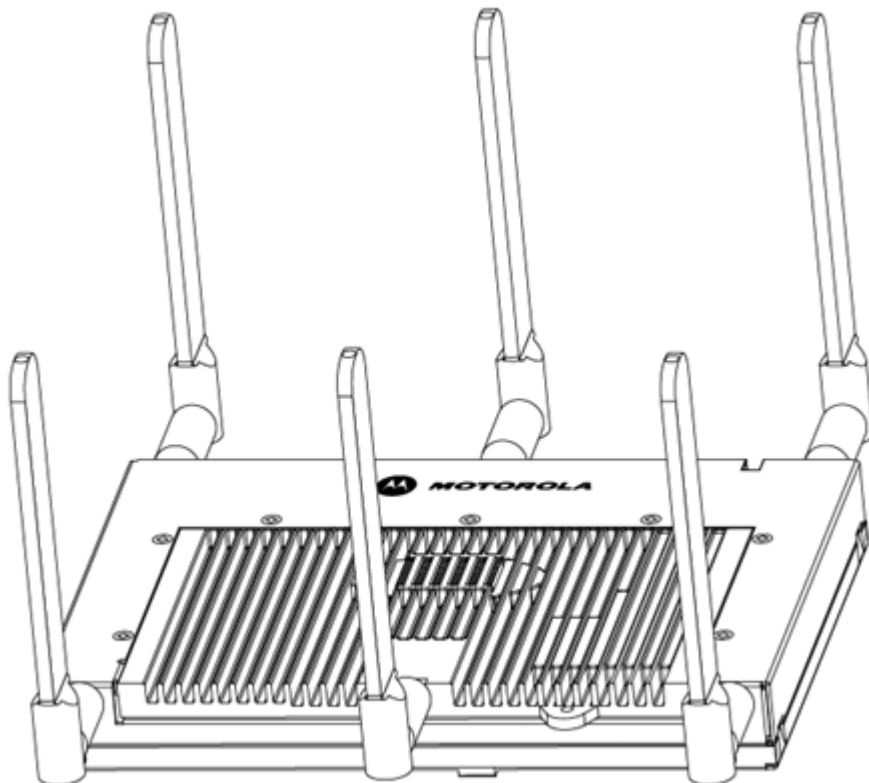


AP7131 Access Point INSTALLATION GUIDE



MOTOROLA SOLUTIONS and the Stylized M Logo are registered in the US Patent & Trademark Office. © Motorola Solutions, Inc. 2013. All rights reserved.

1.0 Introduction	5
1.1 Document Conventions	5
1.2 Warnings	6
1.3 Site Preparation	6
2.0 Hardware Installation	7
2.1 Precautions	7
2.2 Package Contents	7
2.3 Access Point Placement	8
2.3.1 Antenna Options	9
2.3.2 Power Injector System	11
2.4 Mounting the Access Point	13
2.4.1 Wall Mounting	13
2.4.2 Suspended Ceiling T-Bar Installation	17
2.4.3 Above the Ceiling (Plenum) Installation	19
2.5 LED Indicators	22
2.5.1 Three Radio AP7131 LEDs	23
2.5.2 Dual Radio (2.4/5 GHz) LEDs	23
2.5.3 Single Radio 2.4 GHz LEDs	24
2.5.4 Single Radio 5 GHz LEDs	24
2.5.5 Rear AP7131 LED	25
3.0 Basic Access Point Configuration	26
4.0 Specifications	34
4.1 AP7131 Physical Characteristics	34
4.2 AP7131N Physical Characteristics	34
4.3 Electrical Characteristics	35
4.4 AP7131 Radio Characteristics	35
4.5 AP7131N Radio Characteristics	36
5.0 Regulatory Information	37
5.1 Regulatory Overview	37

5.2 Wireless Country Approvals	37
5.3 Health and Safety Recommendations	37
5.3.1 Warnings for the use of Wireless Devices	37
5.3.2 Potentially Hazardous Atmospheres - Fixed Installations	38
5.3.3 Safety in Hospitals	38
5.4 RF Exposure Guidelines	38
5.4.1 Safety Information	38
5.5 Power Supply	39
5.6 Wireless Devices - Countries	39
5.7 Radio Frequency Interference Requirements - FCC	39
5.8 Radio Frequency Interference Requirements - Canada	40
5.8.1 Radio Transmitters	40
5.9 CE Marking and European Economic Area (EEA)	41
5.9.1 Statement of Compliance	41
5.9.2 Japan (VCCI) - Voluntary Control Council for Interference	41
5.9.3 Korea Warning Statement for Class B	42
5.9.4 Other Countries	42
5.10 Waste Electrical and Electronic Equipment (WEEE)	45
5.11 Turkish WEEE Statement of Compliance	46
6.0 Motorola Solutions Support Center	47
7.0 AP7131 Series RoHS Compliance	48

1 Introduction

As a standalone Access Point, an AP7131 series Access Point provides small and medium-sized businesses with a consolidated wired and wireless networking infrastructure, all in a single device. The integrated router, gateway, firewall, DHCP and Power-over-Ethernet (PoE) simplify and reduce the costs associated with networking by eliminating the need to purchase and manage multiple pieces of equipment.

The Access Point is also designed to meet the needs of large, distributed enterprises by converging the functionality of a thick Access Point and thin access port into a single device. This mode enables the deployment of a fully featured intelligent Access Point that can be centrally configured and managed via a Motorola Solutions wireless switch in either corporate headquarters or a network operations center (NOC). In the event the connection between the Access Point and the wireless switch is lost, a Remote Site Survivability (RSS) feature ensures the delivery of uninterrupted wireless services at the local or remote site. All traffic between the adaptive Access Points and the wireless switch is secured through an IPsec tunnel. Additionally, compatibility with Motorola Solutions' RF Management Suite (RFMS) allows you to centrally plan, deploy, monitor and secure large deployments.

An AP7131N model Access Point supports the same feature set as existing AP7131 model Access Points, however AP7131N Access Points support a three radio model (with the third radio dedicated exclusively to WIPS support).



NOTE Both the AP7131 and AP7131N model Access Points share the same Web User Interface (UI) and installation methods. Therefore, the UI and installation descriptions within this guide apply to both models.

1.1 Document Conventions

The following graphical alerts are used in this document to indicate notable situations:



NOTE Tips, hints, or special requirements that you should take note of.



CAUTION Care is required. Disregarding a caution can result in data loss or equipment malfunction.



WARNING! Indicates a condition or procedure that could result in personal injury or equipment damage.

1.2 Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the Access Point.
- Remove jewelry and watches before installing this equipment.
- Verify the unit is grounded before connecting it to the power source.
- Verify any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit.
- Verify that the electrical circuits have appropriate overload protection.
- Attach only approved power cords to the device.
- Verify that the power connector and socket are accessible at all times during the operation of the equipment.
- Verify there is adequate ventilation around the device, and that ambient temperatures meet equipment operation specifications.

1.3 Site Preparation

- Consult your site survey and network analysis reports to determine specific equipment placement, power drops, and so on.
- Assign installation responsibility to the appropriate personnel.
- Identify and document where all installed components are located.
- Ensure adequate, dust-free ventilation to all installed equipment.
- Prepare Ethernet port connections.
- Verify cabling is within the maximum 100 meter allowable length.

2 Hardware Installation

An AP7131 or AP7131N Access Point installation includes mounting the Access Point, connecting the Access Point to the network, connecting antennae and applying power. Installation procedures vary for different environments.

Both an AP7131 and AP7131N model Access Point have the following port designations:

- GE1/POE - LAN port
 - GE2 - WAN Port
1. Verify the contents of the box includes the intended Access Point and accessory hardware.
 2. Review site survey and network analysis reports to determine the location and mounting position for the Access Point.
 3. Connect a CAT-5 or better Ethernet cable to a PoE compatible device and run the cable to the installation site. Ensure there is sufficient cable slack to perform the installation steps.
 4. Determine whether the Access Point is powered using a Power Injector system, combining data and power to the Access Point's GE1/PoE port or will be powered from a conventional power adapter providing power only to the Access Point's DC-48V connector.

2.1 Precautions

Before installing an AP7131 or AP7131N model Access Point:

- Verify the intended deployment location is not prone to moisture or dust.
- Verify the environment has a continuous temperature range between 0° C to 40° C.

2.2 Package Contents

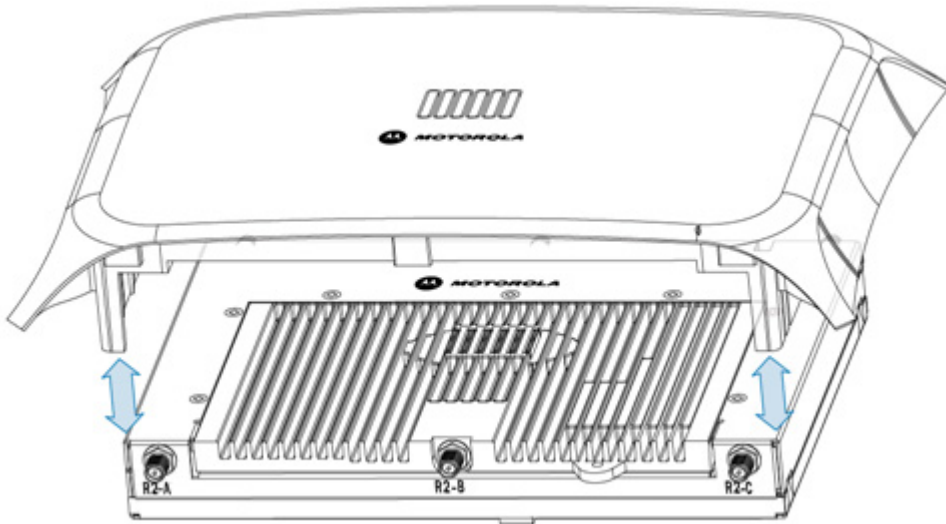
Check package contents for the correct model AP7131 and applicable AP7131 accessories. Each available configuration (at a minimum), contains:

- AP7131 or AP7131N model Access Point (accessories dependent on SKU ordered)
- AP7131 Access Point Installation Guide (this guide, supporting both AP7131 and AP7131N models)
- Wall mount and screw and anchor kit
- Accessories Bag (4 rubber feet and a LED light pipe and badge with label for above the ceiling installations)

Contact the Motorola Solutions Support Center to report missing or improperly functioning items.



NOTE Some Access Points ship with a protective cover (facade) or a 6-element MIMO antenna. The cover disconnects from the Access Point as illustrated on the next page. When attached, LEDs continue to illuminate through the cover.



2.3 Access Point Placement

For optimal performance, install the Access Point away from transformers, heavy-duty motors, fluorescent lights, microwave ovens, refrigerators and other industrial equipment. Signal loss can occur when metal, concrete, walls or floors block transmission. Install the Access Point in an open area or add Access Points as needed to improve coverage.

Antenna coverage is analogous to lighting. Users might find an area lit from far away to be not bright enough. An area lit sharply might minimize coverage and create *dark areas*. Uniform antenna placement in an area (like even placement of a light bulb) provides even, efficient coverage.

Place the Access Point using the following guidelines:

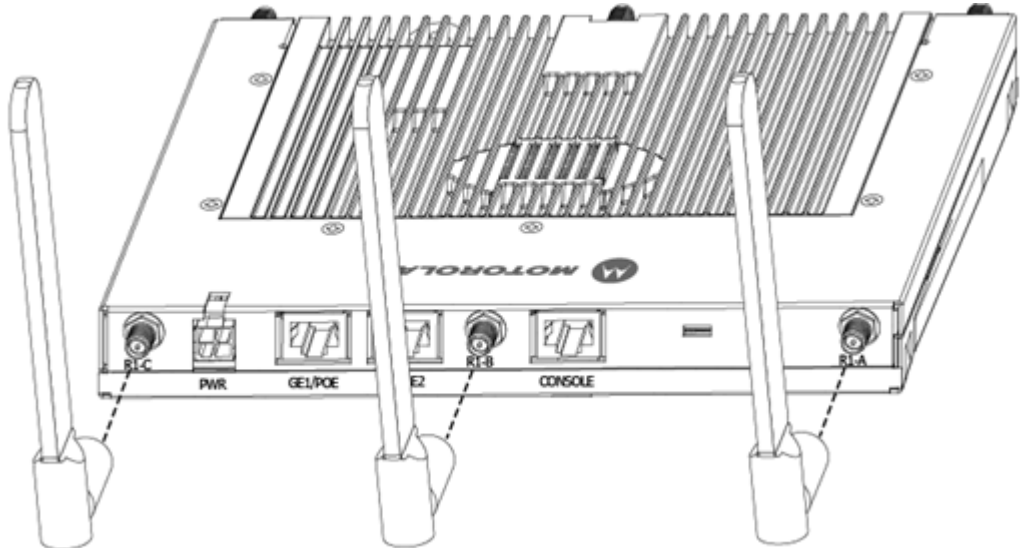
- Install the Access Point at an ideal height of 10 feet from the ground.
- Orient the Access Point antennas vertically for best reception.
- Point the Access Point antennas downward if attaching to the ceiling (external antenna models only).

To maximize the Access Point's radio coverage area, Motorola Solutions recommends conducting a site survey to define and document radio interference obstacles before installing the Access Point.

2.3.1 Antenna Options

Motorola Solutions supports two antenna suites for AP7131 and AP7131N models. One antenna suite supporting the 2.4 GHz band and another antenna suite supporting the 5 GHz band. Select an antenna model best suited to the intended operational environment of your Access Point. The AP7131N model Access Point can be purchased in a three radio configuration. If a three radio SKU is purchased, the Access Point ships with a single antenna, factory connected, to the Access Point chassis (next to the existing R1-A connector). This antenna is in addition to the other six antennas available to the Access Point's other two radios. The single antenna supporting the AP7131N's third radio supports sensor mode only and can not function as a WLAN radio.

Antenna connectors for single radio model Access Point are located on the same side of the Access Point as the LAN and WAN port connections (GE1/POE and GE2). On single radio versions, the R-SMA connectors can support both bands and should be connected to a R-SMA dual-band antenna or an appropriate single band antenna. If necessary a R-SMA to R-BNC adapter (Part No. 25-72178-01) can be purchased separately from Motorola Solutions.



R1 defines the Access Point's radio 1 antenna connectors and R2 defines radio 2 antenna connectors.

Certain Rogue AP Detection features use a radio to perform dual-band scanning. The dedicated radio should be connected to an appropriate dual-band dipole antenna (Part No. ML-2452-APA2-01).

The 2.4 GHz antenna suite includes the following models:

Part Number	Antenna Type	Approximate Gain (dBi)
ML-2499-11PNA2-01R	Wide Angle Directional	8.5
ML-2499-HPA3-01R	Omni-Directional Antenna	3.3
ML-2499-BYGA2-01R	Yagi Antenna	13.9
ML-2499-BPNA3-01R	Directional Panel	15.5
ML-2499-FHPA9-01R	Dipole	10.5
ML-2452-APA2-01	Dual-Band	3/4
ML-2452-PTA2M3X3-1	Facade with 6 Element Antenna Module	4.75/5.5
ML-2452-PTA3M3-036	3 Port MIMO Antenna	5/5



NOTE An additional adapter is required to use ML-2499-11PNA2-01R and ML-2499-BYGA2-01R model antennas. Please contact Motorola Solutions for more information.

The 5 GHz antenna suite includes the following models:

Part Number	Antenna Type	Approximate Gain (dBi)
ML-5299-WPNA1-01R	Panel Antenna	13
ML-5299-HPA1-01R	Wide-Band Omni-Directional Antenna	5.0
ML-5299-FHPA6-01R	Omni-Directional Antenna	8.25
ML-2452-APA2-01	Dual-Band	3/4
ML-2452-PTA2M3X3-1	Facade with 6 Element Antenna Module	4.75/5.5
ML-2452-PTA3M3-036	3 Port MIMO Antenna	5/5
ML-2452-APA6J-01	Dipole	2.4GHz Peak gain: -5.76dBi 5GHz Peak gain : band 1: -3.77dBi band 2: -3.38dBi band 3: -2.84dBi band 4: -2.94dBi

For a more exhaustive overview of the antennas and associated components supported by the Motorola Solutions Access Point family, refer to the *Enterprise Wireless LAN Antenna Specification Guide* available at <http://supportcentral.motorolasolutions.com/support/product/manuals.do>.

2.3.2 Power Injector System

The Access Point can receive power via an Ethernet cable connected to the GE1/PoE port.



NOTE Single radio model Access Points always operate using a full power configuration. The power management configurations described in the table below only apply to dual radio models. For detailed information on the power management options available to the AP7131, refer to the Motorola Solutions WiNG 5.4 Access Point System Reference Guide available at: <http://supportcentral.motorolasolutions.com/support/product/manuals.do>.

When users purchase a WLAN solution, they often need to place Access Points in obscure locations. In the past, a dedicated power source was required for each Access Point in addition to the Ethernet infrastructure. This often required an electrical contractor to install power drops at each Access Point location. The Power Injector merges power and Ethernet into one cable, reducing the burden of installation and allowing optimal Access Point placement in respect to the intended coverage area.

The Power Injector (Part No. AP-PSBIAS-1P3-AFR) is a high power POE Injector delivering up to 30 watts. The Access Point can only use a Power Injector when connecting the unit to the Access Point's GE1/POE port. The Power Injector is separately ordered and not shipped with an existing AP SKU.

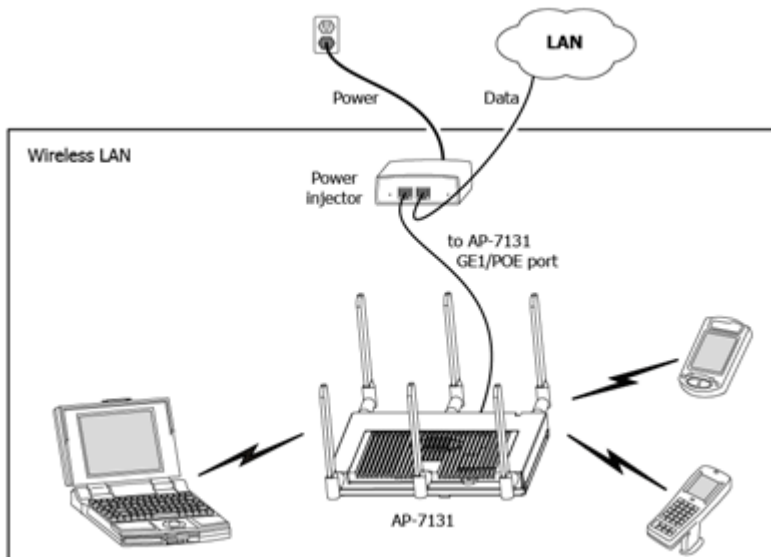
An AP7131 and AP7131N can also be used with the 3af power injector (AP-PSBIAS-1P2-AFR). However, AP functionality is limited when powered by an AP-PSBIAS-1P2-AFR, since the AP has Ethernet connectivity limited to only the GE1 port.

The Motorola Solutions Access Point Power Supply (Part No. 50-14000-247R) is not included with the Access Point and is orderable separately as an accessory. If the Access Point is providing both POE power over the GE1/POE connection, as well as the 50-14000-247R power supply concurrently, the Access Point will source power from the 50-14000-247R supply only. Disconnecting AC power from the 50-14000-247R, causes the Access Point to re-boot before sourcing power from the POE power injector. If the Access Point is operating using injector supplied power, the Access Point will not automatically reboot if an AC adapter is connected. The Access Point continues to operate with power supplied from the AC adapter without change to the Access Point's operating configuration. If using adapter supplied power and a change to the Access Point's operating configuration is warranted (for example, if needing to access the GE2 port), the Access Point needs to be manually rebooted by the customer.



CAUTION The Access Point supports any standards-based compliant power source (including non-Motorola Solutions power sources). However, using the wrong solution (including a POE system used on a legacy Motorola Solutions Access Point) could either limit functionality or severely damage the Access Point and void the product warranty.

A separate Power Injector is required for each Access Point comprising the network.



The following guidelines should be adhered to before cabling the Power Injector to an Ethernet source and an Access Point:

- Do not block or cover airflow to the Power Injector.
- Keep the Power Injector away from excessive heat, humidity, vibration and dust.
- The Power Injector isn't a repeater, and does not amplify the Ethernet signal. For optimal performance, ensure the Power Injector is placed as close as possible to the data port.



CAUTION To avoid problematic performance and restarts, disable POE from a wired controller port connected to an Access Point if mid-span *power sourcing equipment* (PSE) is used between the two, regardless of the manufacturer.



CAUTION Ensure AC power is supplied to the Power Injector using an AC cable with an appropriate ground connection approved for the country of operation.

To install the Power Injector to an Ethernet data source and an Access Point:

1. Connect the Power Injector to an AC outlet (110VAC to 220VAC).
2. Connect an RJ-45 Ethernet cable between the network data supply (host) and the Power Injector Data In connector.

3. Connect an RJ-45 Ethernet cable between the Power Injector Data & Power Out connector and the Access Point's GE1/POE port.



NOTE Cabling a Power Injector to the WAN port (GE2 port) renders the Access Point non-operational. Only use a AP-PSBIAS-1P3-AFR (or AP-PSBIAS-1P2-AFR) Power Injector with the Access Point's GE1/POE (LAN) port.

Ensure the cable length from the Ethernet source (host) to the Power Injector and Access Point does not exceed 100 meters (333 ft).

The Power Injector has no On/Off power switch. The Injector receives power and is ready for device connection and operation as soon as AC power is applied. Refer to the *Installation Guide* shipped with the Power Injector for a description of the device's LEDs.

2.4 Mounting the Access Point

Both the AP7131 and AP7131N can attach to a wall, mount under a suspended T-Bar or above a ceiling (plenum or attic) following the same installation instructions. Choose one of the following mounting options based on the physical environment of the coverage area. Do not mount the Access Point in a location that has not been approved in a site survey.

2.4.1 Wall Mounting

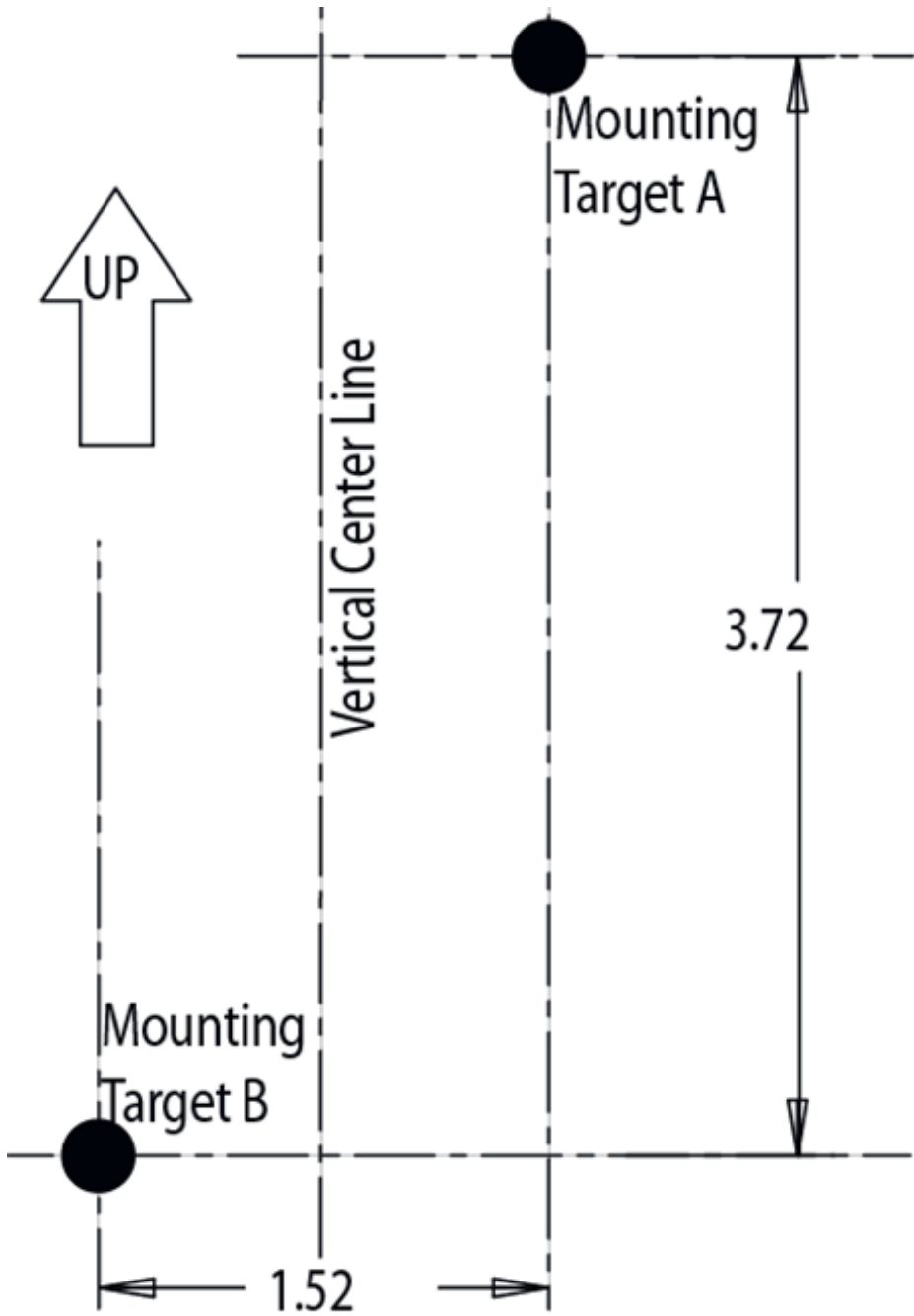
Wall mounting requires hanging the Access Point along its width (or length) using the pair of slots on the bottom of the unit and the Access Point mounting template (on the next page) for the screws.



CAUTION An Access Point should be wall mounted to concrete or plaster-wall-board (dry wall) only. Do not wall mount the Access Point to combustible surfaces.

The hardware and tools (customer provided) required to install the Access Point on a wall consists of:

- Two Phillips (ANSI Standard Metric) M3.5 X 0.6 X 20mm Type D Self-Tapping screws: (ANSI Standard) #6-18 X 0.875in. Type A or AB Self-Tapping screw, or (ANSI Standard Metric) M3.5 X 0.6 X 20mm Type D Self-Tapping screw
- Two wall anchors
- Wall mount template (included on the next page)
- Security cable (optional third part provided accessory)



To mount the Access Point on a wall using the provided template:

1. Copy the template (on the previous page) to a blank piece of paper. Do not reduce or enlarge the scale of the template.



NOTE If printing the mounting template (on the previous page) from an electronic PDF, dimensionally confirm the template by measuring each value for accuracy.

2. Tape the template to the wall mounting surface.
 - If the installation requires the antenna be positioned vertically, the centerline reference (of the template) needs to be positioned vertically. The cabling shall exit the Access Point in a vertical direction.
 - If the installation requires the antenna be positioned horizontally, the vertical centerline (of the template) needs to be positioned horizontally. The cabling shall exit the Access Point in a horizontal direction
3. At mounting targets A and B, mark the mounting surface through the template at the target center.
4. Discard the mounting template.
5. At each point, drill a hole in the wall, insert an anchor, screw into the anchor the wall mounting screw and stop when there is 1mm between the screw head and the wall.
6. If pre-drilling a hole, the recommended hole size is 2.8mm (0.11 in.) if the screws are going directly into the wall and 6mm (0.23 in.) if wall anchors are being used.
7. If required, install and attach a security cable to the Access Point lock port.
8. Attach the antennas to their correct connectors.

For information on available antennas, see [Antenna Options](#).
9. Place the large center opening of each of the mount slots over the screw heads.
10. Slide the Access Point down along the mounting surface to hang the mount slots on the screw heads..



CAUTION Ensure you are placing the antennas on the correct connectors (depending on your single or dual-radio model and frequency used) to ensure the successful operation of the Access Point.



NOTE It is recommended the Access Point be mounted with the RJ45 cable connector oriented upwards or downwards to ensure proper operation.

11. Cable the Access Point using either the Power Injector solution or an approved line cord and power supply.

For Motorola Power Injector installations:

- a. Connect an RJ-45 CAT5 Ethernet cable between the network data supply (host) and the Power Injector's **Data In** connector.
- b. Connect an RJ-45 CAT5 Ethernet cable between the Power Injector's **Data & Power Out** connector and the Access Point's GE1/POE ports.
- c. Ensure the cable length from the Ethernet source (host) to the Power Injector and Access Point does not exceed 100 meters (333 ft). The Power Injector has no On/Off power switch. The Power Injector receives power as soon as AC power is applied. For more information, see [Power Injector System](#).

For standard power adapter (non Power Injector) and line cord installations:

- a. Connect a RJ-45 CAT5e (or CAT6) Ethernet cable between the network data supply (host) and the Access Point's GE1/PoE.
 - b. Verify the power adapter is correctly rated according the country of operation.
 - c. Connect the power supply line cord to the power adapter.
 - d. Attach the power adapter cable to the DC-48V power connector on the Access Point.
 - e. Attach the power supply line cord to a power supply.
12. Verify the behavior of the Access Point LEDs. For more information, see [LED Indicators](#).



CAUTION Do not actually connect to the power source until the cabling portion of the installation is complete

13. The Access Point is ready to configure. For information on basic Access Point device configuration, see [Basic Access Point Configuration](#).

2.4.2 Suspended Ceiling T-Bar Installation

A suspended ceiling mount requires holding the Access Point up against the T-bar of a suspended ceiling grid and twisting the Access Point chassis onto the T-bar.

The mounting tools (customer provided) and hardware required to install the Access Point on a ceiling T-bar consists of:

- Safety wire (recommended and customer supplied)
- Security cable (optional and customer supplied).

To install the Access Point on a ceiling T-bar:

1. Motorola Solutions recommends you loop a safety wire — with a diameter of at least 1.01 mm (.04 in.), but no more than 0.158 mm (.0625 in.) — through the tie post (above the Access Point's console connector) and secure the loop.
2. If desired, install and attach a security cable to the Access Point lock port.
3. Attach the antennas to their correct connectors.

For more information on the antenna options available to the Access Point, see [Antenna Options](#).



CAUTION Ensure you are placing the antennas on the correct connectors (depending on your single or dual-radio model and frequency used) to ensure the successful operation of the Access Point.

4. Cable the Access Point using either the Power Injector solution or an approved line cord and power supply.

For Motorola Power Injector installations:

- a. Connect an RJ-45 CAT5 Ethernet cable between the network data supply (host) and the Power Injector's **Data In** connector.
- b. Connect an RJ-45 CAT5 Ethernet cable between the Power Injector's **Data & Power Out** connector and the Access Point's GE1/POE port.
- c. Ensure the cable length from the Ethernet source (host) to the Power Injector and Access Point does not exceed 100 meters (333 ft). The Power Injector has no On/Off power switch. The Power Injector receives power as soon as AC power is applied. For more information, see [Power Injector System](#).

For standard power adapter (non Power Injector) and line cord installations:

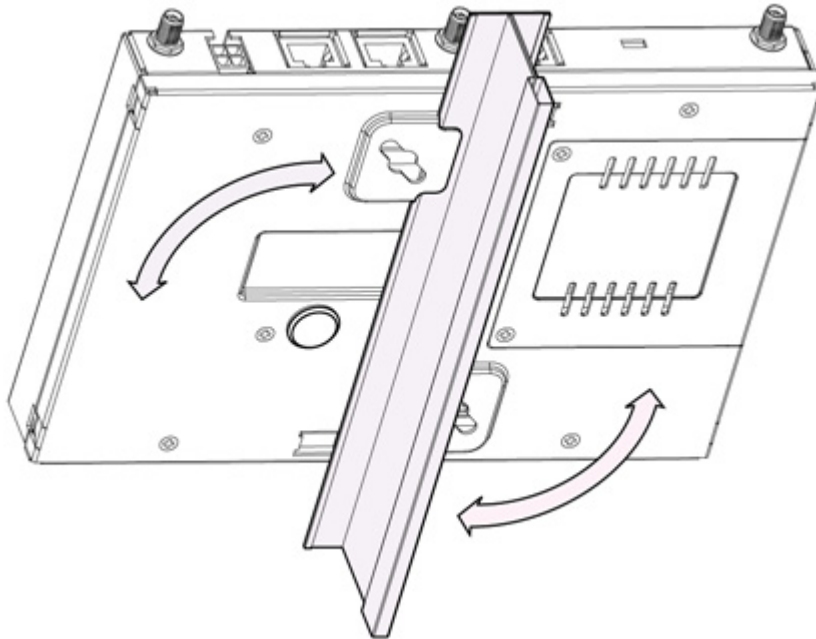
- a. Connect a RJ-45 CAT5e (or CAT6) Ethernet cable between the network data supply (host) and the Access Point's GE1/PoE or GE2 port.
- b. Verify the power adapter is correctly rated according the country of operation.
- c. Connect the power supply line cord to the power adapter.
- d. Attach the power adapter cable into the power connector on the Access Point.

- e. Attach the power supply line cord to a power supply.



CAUTION Do not actually connect to the power source until the cabling portion of the installation is complete

5. Verify the behavior of the Access Point LEDs. For more information, see [LED Indicators](#).
6. Align the bottom of the ceiling T-bar with the back of the Access Point.
7. Orient the Access Point chassis by its length and the length of the ceiling T-bar.
8. Rotate the Access point chassis 45 degrees clockwise.
9. Push the back of the Access Point chassis on to the bottom of the ceiling T-bar.
10. Rotate the Access Point chassis 45 degrees counter-clockwise. The clips click as they fasten to the T-bar.



11. The Access Point is ready to configure. For information on basic Access Point device configuration, see [Basic Access Point Configuration](#).

2.4.3 Above the Ceiling (Plenum) Installation

An above the ceiling installation requires placing the Access Point above a suspended ceiling and installing the provided light pipe under the ceiling tile for viewing the rear panel status LEDs of the unit. An above the ceiling installation enables installations compliant with drop ceilings, suspended ceilings and industry standard tiles from .625 to .75 inches thick.



NOTE Both the AP7131 and AP7131N are Plenum rated to UL2043 and NEC1999 to support above the ceiling installations. To ensure UL compliance and proper Access Point operation within the Air Handling Plenum, the Access Point must be installed with the bottom surface of the unit in contact with the un-finished surface of the ceiling tile. This will facilitate the positioning of the light pipe (described in the following pages) through the ceiling tile.



CAUTION Motorola Solutions does not recommend mounting the Access Point directly to any suspended ceiling tile with a thickness less than 12.7mm (0.5in.) or a suspended ceiling tile with an unsupported span greater than 660mm (26in.). Motorola Solutions strongly recommends fitting the Access Point with a safety wire suitable for supporting the weight of the device. The safety wire should be a standard ceiling suspension cable or equivalent steel wire between 1.59mm (.062in.) and 2.5mm (.10in.) in diameter.

The mounting hardware required to install the Access Point above a ceiling consists of:

- Light pipe
- Badge for light pipe
- Decal for badge
- Safety wire (strong recommended)
- Security cable (optional)

To install the Access Point above a ceiling:



NOTE Remove the Access Point's facade and antennas before installing in an above the ceiling orientation. The Access Point is not certified for an above the ceiling installation with its accessories installed.

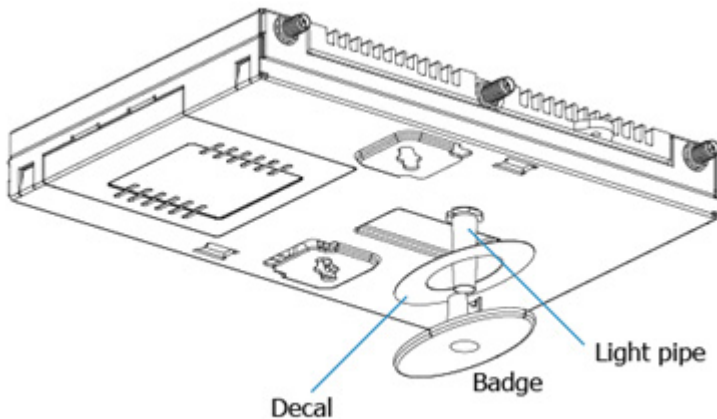
1. If possible, remove the adjacent ceiling tile from its frame and place it aside.
2. If required, install a safety wire, between 1.5mm (.06in.) and 2.5mm (.10in.) in diameter, in the ceiling space.
3. If required, install and attach a security cable to the Access Point's lock port.
4. Mark a point on the finished side of the tile where the light pipe is to be located.
5. Create a light pipe path hole in the target position on the ceiling tile.

- Use a drill to make a hole in the tile the approximate size of the Access Point LED light pipe.



CAUTION Motorola Solutions recommends care be taken not to damage the finished surface of the ceiling tile when creating the light pipe hole and installing the light pipe.

- Remove the light pipe's rubber stopper (from the Access Point) before installing the light pipe.
- Connect the light pipe to the bottom of the Access Point. Align the tabs and rotate approximately 90 degrees. Do not over tighten.



- Fit the light pipe into hole in the tile from its unfinished side.
- Place the decal on the back of the badge and slide the badge onto the light pipe from the finished side of the tile.
- Attach the antennas to their correct connectors.



CAUTION Ensure you are placing the antennas on the correct connectors (depending on your single or dual-radio model and frequency used) to ensure the successful operation of the Access Point.

For information on the antennas available to the Access Point, see [Antenna Options](#).

- Motorola Solutions recommends attaching safety wire to the Access Point safety wire tie point or security cable (if used) to the Access Point's lock port.
- Align the ceiling tile into its former ceiling space
- Cable the Access Point using either the Power Injector solution or an approved line cord and power supply.

For Motorola Power Injector installations:

- a. Connect an RJ-45 CAT5 Ethernet cable between the network data supply (host) and the Power Injector's **Data In** connector.
- b. Connect an RJ-45 CAT5 Ethernet cable between the Power Injector's **Data & Power Out** connector and the Access Point's GE1/POE port.
- c. Ensure the cable length from the Ethernet source (host) to the Power Injector and Access Point does not exceed 100 meters (333 ft). The Power Injector has no On/Off power switch. The Power Injector receives power as soon as AC power is applied. For more information, see [Power Injector System](#).

For standard power adapter (non Power Injector) and line cord installations:

- a. Connect a RJ-45 CAT5e (or CAT6) Ethernet cable between the network data supply (host) and the Access Point's GE1/PoE or GE2 port.
- b. Verify the power adapter is correctly rated according the country of operation.
- c. Connect the power supply line cord to the power adapter.
- d. Attach the power adapter cable into the power connector on the Access Point.
- e. Attach the power supply line cord to a power supply.



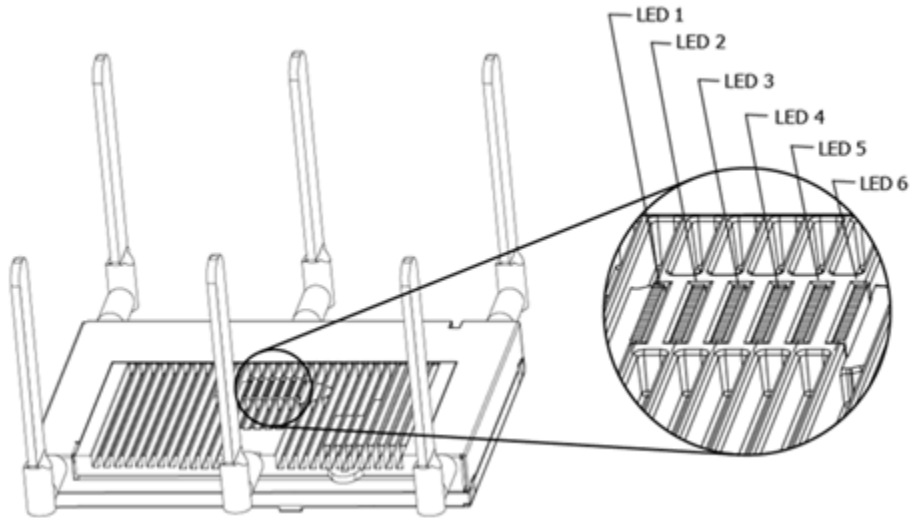
CAUTION Do not actually connect to the power source until the cabling portion of the installation is complete

15. Verify the behavior of the Access Point LED light pipe. For more information, see [LED Indicators](#).
16. Place the ceiling tile back in its frame and verify it is secure.
17. The Access Point is ready to configure. For information on basic Access Point device configuration, see [Basic Access Point Configuration](#).

2.5 LED Indicators

Both AP7131 and AP7131N model Access Point have six LEDs on the top of the Access Point housing, and one optional LED light pipe at the bottom of the unit. However, an AP7131 model Access Point does not use LED 6, as no third radio is available. Five LEDs illuminate (on top of the housing) for dual radios models and four illuminate for single radio models.

The Access Point utilizes two (different colored) lights below each LED. Only one light displays within a LED at any given time. Every light within each LED is exercised during startup to allow the user to see if an LED is non-functional. The LEDs turn on and off while rotating around in a circle. Since two LEDs feed each light pipe, the pattern is from left to right, then right to left.



NOTE The LED blink rate is proportional to activity. The busiest traffic corresponds to the fastest blink, while the slowest traffic corresponds to slowest blink.



NOTE Depending on how the 5 GHz and 2.4 GHz radios are configured, the LEDs will blink at different intervals between amber and yellow (5 GHz radio) and emerald and yellow (2.4 GHz radio).

The LEDs on the top housing of the Access Point are clearly visible in wall and below ceiling installations. The top housing LEDs have the following display and functionality:

2.5.1 Three Radio AP7131 LEDs

A three radio model AP7131N Access Point has the following unique LED behavior:

LED 1	LED 2 (LAN)	LED 3 (WAN)	LED 4 - 5 GHz	LED 5 - 2.4 GHz	LED 6
Blinking Red indicates booting. Solid Red defines the diagnostic mode. White defines normal operation.	Blinking Green indicates normal GE1 operation. Blinking Yellow indicates port error.	Blinking Green indicates normal GE2 operation. Blinking Yellow indicates port error.	Amber is on when the radio is configured for 802.11a/n. Blinking Amber indicates radio activity. When functioning as a sensor, LED alternates between Amber and Yellow . The blink interval is 1 second. When no Server is connected, the Yellow LED is always on.	Emerald is on when the radio is configured for 802.11bgn. Blinking Emerald indicates radio activity. When functioning as a sensor, LED alternates between Emerald and Yellow . The blink interval is 1 second. When no Server is connected, the Yellow LED is always on.	Amber indicates that the radio is defined as a sensor, but is not connected to server. Alternates between Emerald and Amber when the radio is defined as a sensor and a server is connected. The blink interval is 1 second.

2.5.2 Dual Radio (2.4/5 GHz) LEDs

A dual radio model Access Point has the following unique LED behavior:

LED 1	LED 2 (LAN)	LED 3 (WAN)	LED 4 - 5 GHz	LED 5 - 2.4 GHz	LED 6
Blinking Red indicates booting. Solid Red defines the diagnostic mode. White defines normal operation.	Blinking Green indicates normal GE1 operation. Blinking Yellow indicates port error.	Blinking Green indicates normal GE2 operation. Blinking Yellow indicates port error.	Amber is on when the radio is configured for 802.11a/n. Blinking Amber indicates radio activity. When functioning as a sensor, LED alternates between Amber and Yellow . The blink interval is 1 second. When no Server is connected, the Yellow LED is always on.	Emerald is on when the radio is configured for 802.11bgn. Blinking Emerald indicates radio activity. When functioning as a sensor, LED alternates between Emerald and Yellow . The blink interval is 1 second. When no Server is connected, the Yellow LED is always on.	Not Used

2.5.3 Single Radio 2.4 GHz LEDs

A single 2.4 GHz radio model Access Point has the following unique LED behavior:

LED 1	LED 2 (LAN)	LED 3 (WAN)	LED 4 - 5 GHz	LED 5 - 2.4 GHz	LED 6
Blinking Red indicates booting. Solid Red defines the diagnostic mode. White defines normal operation.	Blinking Green indicates normal GE1 operation. Blinking Yellow indicates port error.	Blinking Green indicates normal GE2 operation. Blinking Yellow indicates port error.	Off	Emerald is on when the radio is configured for 802.11bgn. Blinking Emerald indicates radio activity. When functioning as a sensor, LED alternates between Emerald and Yellow . The blink interval is 1 second. When no Server is connected, the Yellow LED is always on.	Not Used

2.5.4 Single Radio 5 GHz LEDs

A single 5 GHz radio model Access Point has the following unique LED behavior:

LED 1	LED 2	LED 3	LED 4 - 5 GHz	LED 5 - 2.4 GHz	LED 6
Blinking Red indicates booting. Solid Red defines the diagnostic mode. White defines normal operation.	Blinking Green indicates normal GE1 operation. Blinking Yellow indicates port error.	Blinking Green indicates normal GE2 operation. Blinking Yellow indicates port error.	Amber is on when the radio is configured for 802.11a/n. Blinking Amber indicates radio activity. When functioning as a sensor, LED alternates between Amber and Yellow . The blink interval is 1 second. When no Server is connected, the Yellow LED is always on.	Off	Not Used

2.5.5 Rear AP7131 LED

The LED on the rear (bottom) of the Access Point is optionally viewed using a single (customer installed) extended light pipe, adjusted as required to suit above the ceiling installations. The LED light pipe has the following color display and functionality:

<i>LED 7</i>
Blinking Red (160 msec) indicates a failure condition.
Solid Red defines the diagnostic mode.
White defines normal operation.

3 Basic Access Point Configuration

Once the Access Point is installed and powered on, complete the following steps to get the device up and running and access management functions:

1. Attach an Ethernet cable from the Access Point to a controller with an 802.3af compatible power source or use the PWRS-14000-148R power supply to supply power to the Access Point (once fully cabled).

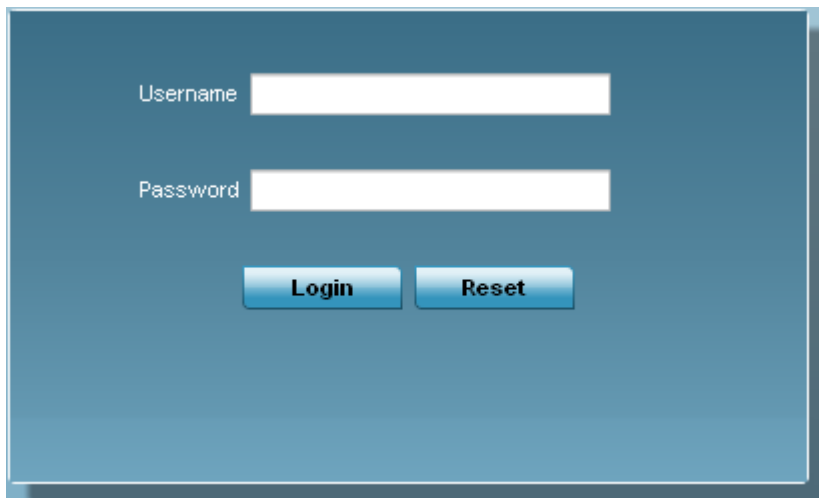
If your host system is a DHCP server, an IP address is automatically assigned to the Access Point and can be used for device connection. However, if a DHCP server is not available, you'll need to derive the IP address from the Access Point MAC address. Using this method, the last two bytes of the MAC address become the last two octets of the IP address. For example:

MAC address - 00:C0:23:00:F0:0A

Zero-Config IP address - 169.254.240.10

To derive the Access Point's IP address using its MAC address:

- a. Open the Windows calculator by selecting *Start > All Programs > Accessories > Calculator*. This menu path may vary slightly depending on your version of Windows.
 - b. With the Calculator displayed, select *View > Scientific*. Select the **Hex** radio button.
 - c. Enter a hex byte of the Access Point's MAC address. For example, F0.
 - d. Select the **Dec** radio button. The calculator converts F0 into 240. Repeat this process for the last Access Point MAC address octet.
2. Point the Web browser to the Access Point's IP address. The following login screen displays.



The image shows a login interface with a dark blue background. It features two white text input fields. The first field is labeled 'Username' and the second is labeled 'Password'. Below the 'Password' field, there are two blue buttons with white text: 'Login' and 'Reset'.

3. Enter the default username **admin** in the **Username** field.
4. Enter the default password **motorola** in the **Password** field.

5. Click the **Login** button to load the management interface.



NOTE When logging in for the first time, you're prompted to change the password to enhance device security in subsequent logins.



NOTE If you get disconnected when running the wizard, you can connect again with the Access Point's actual IP address (once obtained) and resume the wizard.

6. If this is the first time the management interface has been accessed, a dialogue displays allowing an administrator to define whether a typical setup or advanced setup is conducted.



For the purposes of this guide, use the Typical Setup (Recommended) option to simply the process of getting the Access Point up and running quickly with a minimum number of changes to the Access Point's default configuration.

For information on using the Access Point's Advanced Setup option, refer to the *WiNG Access Point System Reference Guide* to familiarize yourself with the feature set supported by the WiNG operating system. The guide is available at <http://supportcentral.motorolasolutions.com/support/product/manuals.do>.

The Initial Setup Wizard displays a *Navigation Panel* on the left-hand side of each screen to assist the administrator in assessing which tasks still require completion before the Access Point can be deployed into service.

A green checkmark to the left of an item in the Navigation Panel defines the task as having its minimum required configuration set correctly. A red X defines a task as still requiring at least one parameter be defined correctly.



The tasks populating the Navigation Panel differ depending on whether a Typical Setup (Recommended) or Advanced Setup is selected as the setup option. Select Save/Commit within each page to save the updates made to that page's configuration. Select Next to proceed to the next page listed in the Navigation Panel. Select Back to revert to the previous screen in the Navigation Panel without saving your updates. The Introduction screen displays a list of the basic configuration activities supported by the Initial Setup Wizard.



NOTE While you can navigate to any page in the navigation panel, you cannot complete the Initial AP Setup Wizard until each task in the Navigation Panel has a green checkmark.

7. Select **Next**. The Initial AP Setup Wizard displays the Access Point Type screen to define the Access Point's Standalone versus Virtual Controller AP functionality,

Access Point Type Selection

- Virtual Controller AP - When more than one access point is deployed, a single access point can function as a Virtual Controller AP and manage Dependent mode access points. The Virtual Controller AP can adopt and configure other like APs in a 24-cell deployment.
- Standalone AP - Select this option to deploy this access point as an autonomous "fat" access point. A standalone AP isn't managed by a Virtual Controller AP, or adopted by a controller.

Country

8. Select an **Access Point Type** from the following options:
 - *Virtual Controller AP* - When more than one Access Point is deployed, a single Access Point can function as a Virtual Controller AP. Up to 24 Access Points can be connected to, and managed by, a single Virtual Controller AP of the same model.
 - *Standalone AP* - Select this option to deploy this Access Point as an autonomous fat Access Point. A Standalone AP isn't managed by a Virtual Controller AP, or adopted by a controller.



NOTE If wanting to adopt the Access Point to a controller or service platform. Use the controller or service platform's resident UI to connect to the Access Point, provision its configuration and administrate the Access Point's configuration.



NOTE If designating the Access Point as a Standalone AP, Motorola Solutions recommends the Access Point's UI be used exclusively to define its device configuration, and not the CLI. The CLI provides the ability to define more than one profile and the UI does not. Consequently, the two interfaces cannot be used collectively to manage profiles without an administrator encountering problems.

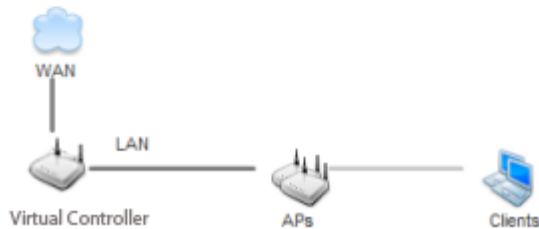
9. Use the *Country* drop-down menu to set where the Access Point is deployed.

The Access Point prompts for the correct country code on the first login. A warning message also displays stating an incorrect country setting may result in illegal radio operation. Selecting the correct country is central to legal operation. Each country has its own regulatory restrictions concerning electromagnetic emissions and the maximum RF signal strength that can be transmitted. This is a required parameter.

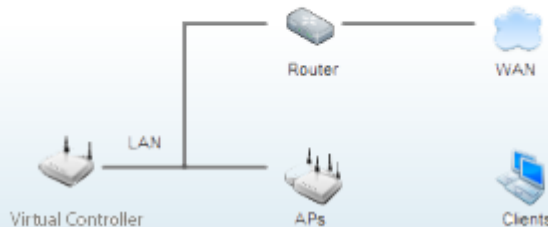
10. Select **Next**. The Initial Setup Wizard displays the **Access Point Mode** screen to define the Access Point's routing or bridging mode functionality.

Access Point Mode Selection

- Router Mode - the access point routes traffic between the wireless network and the Internet or corporate network (WAN).




- Bridge Mode - In Bridge Mode, the access point depends on an external router for routing LAN and WAN traffic. Routing is generally used on one device, whereas bridging is typically used in a larger density network. Thus, select Bridge Mode when deploying this access point with numerous peer APs supporting clients on both the 2.4 and 5GHz radio bands.



11. Select an **Access Point Mode** from the available options:
- *Router Mode* -the Access Point routes traffic between the local network (LAN) and the Internet or external network (WAN). Router mode is recommended in a deployment supported by just a single Access Point. When Router Mode is selected, an additional WAN screen is available in the wizard screen flow to configure interface settings for the Access Point's WAN port.
 - *Bridge Mode* - n Bridge Mode, the AP depends on an external router for routing LAN and WAN traffic. Routing is generally used on one device, whereas bridging is typically used in a larger network. Thus, select Bridge Mode when deploying this Access Point with numerous peer APs supporting clients on both the 2.4 and 5GHz radio bands.

12. Select **Next**. The Initial AP Setup Wizard displays the **LAN Configuration** screen to set the Access Point's LAN interface configuration.

 **LAN Configuration**

Please configure interface settings for LAN (VLAN 1) which will be used by wireless clients

Use DHCP [What is this?](#)

Static IP Address/Subnet [What is this?](#) *

DHCP Server

Use on-board DHCP server to assign IP addresses to wireless clients

Range --

Default Gateway

Domain Name Server (DNS)

DNS Forwarding

Primary DNS Secondary DNS

13. Set the following DHCP and Static IP Address/Subnet information for the LAN interface:
- *Use DHCP* - Select the checkbox to enable an automatic network address configuration using the Access Point's DHCP server.
 - *Static IP Address/Subnet* - Enter an IP Address and a subnet for the Access Point's LAN interface. If Use DHCP is selected, this field is not available. When selecting this option, define the following *DHCP Server* and *Domain Name Server (DNS)* resources, as those fields will become enabled on the bottom portion of the screen.
 - *Use on-board DHCP server to assign IP addresses to wireless clients* - Select the checkbox to enable the Access Point's DHCP server to provide IP and DNS information to clients on the LAN interface.
 - *Range* - Enter a starting and ending IP Address range for client assignments on the LAN interface. Avoid assigning IP addresses from x.x.x.1 - x.x.x.10 and x.x.x.255, as they are often reserved for standard network services. This is a required parameter.
 - *Default Gateway* - Define a default gateway address for use with the default gateway. This is a required parameter.

- *DNS Forwarding* - Select this option to allow a DNS server to translate domain names into IP addresses. If this option is not selected, a primary and secondary DNS resource must be specified. DNS forwarding is useful when a request for a domain name is made but the DNS server, responsible for converting the name into its corresponding IP address, cannot locate the matching IP address.
 - *Primary DNS* - Enter an IP Address for the main Domain Name Server providing DNS services for the Access Point's LAN interface.
 - *Secondary DNS* - Enter an IP Address for the backup Domain Name Server providing DNS services for the Access Point's LAN interface.
14. Select **Next**. If Router was selected as the Access Point mode the Initial Setup Wizard displays the **WAN Configuration** screen. If Bridge was selected, the wizard proceeds to the **Summary and Commit** screen.

WAN Configuration

Please configure interface settings for WAN port

Use DHCP [What is this?](#)

Static IP Address/Subnet [What is this?](#)

Default Gateway

Port for External Network GE1 Port [What is this?](#)

GE2 Port [What is this?](#)

Enable NAT on the WAN Interface [What is this?](#)

15. Set the following DHCP and Static IP Address/Subnet information to define how the Access Point routes traffic between the local network (LAN) and the Internet or external network (WAN):
- *Use DHCP* - Select the checkbox to enable an automatic network address configuration using the Access Point's DHCP server.
 - *Static IP Address/Subnet* - Enter an IP Address/Subnet and gateway for the Access Point's WAN interface. These are required fields.
 - *Port for External Network* - Select the port used as the physical Access Point connection to the external network. The ports available differ depending on the Access Point model deployed. Access point models with a single port have this option fixed.
 - *Enable NAT on the WAN Interface* - Select the checkbox to allow traffic to pass between the Access Point's WAN and LAN interfaces.

16. Select **Next**. The Initial AP Setup Wizard displays the **Summary and Commit** screen to summarize the screens (pages) and settings updated using the Initial Setup Wizard.

 **Access Point Type Page** _____

Access Point Type Standalone AP

 **Access Point Mode Page** _____

Access Point Mode Bridge Mode

 **LAN Configuration Page** _____

LAN Configuration Type Static IP Address/Subnet

Static IP Address/Subnet 10.76.28.130/24

lanvlan_id 1

No user intervention or additional settings are required within this screen. Its an additional means of validating the Access Point's updated configuration before its deployed. However, if a screen displays settings not intended as part of the initial configuration, then any screen can be selected again from within the Navigation Panel and its settings modified accordingly.

17. If the configuration displays as intended, select the **Save/Commit** button to implement these settings to the Access Point's configuration. If additional changes are warranted based on the summary, either select the target page from the **Navigational Panel**, or use the **Back** and **Next** buttons to scroll to the target screen.

4 Specifications

4.1 AP7131 Physical Characteristics

An AP7131 model Access Point has the following physical characteristics:

<i>Dimensions</i>	5.50 in. Depth x 7.88 in. Width x 1.10 in. Height 14 cm Depth x 20.32 cm Width x 2.79 cm Height
<i>Housing</i>	Metal, plenum-rated housing (UL2043)
<i>Weight</i>	2.22 lbs
<i>Operating Temperature</i>	-4°F to 122°F/-20°C to 50°C
<i>Storage Temperature</i>	-40°F to 158°F/-40°C to 70°C
<i>Humidity</i>	5 to 95% RH non-condensing
<i>Electrostatic Discharge</i>	15kV air, 8kV contact

4.2 AP7131N Physical Characteristics

An AP7131N model Access Point has the following physical characteristics:

<i>Dimensions</i>	5.50 in. Depth x 7.88 in. Width x 1.38 in. Height 14 cm Depth x 20.32 cm Width x 3.5 cm Height
<i>Housing</i>	Metal, plenum-rated housing (UL2043)
<i>Weight</i>	2.7 lbs
<i>Operating Temperature</i>	-4°F to 122°F/-20°C to 50°C
<i>Storage Temperature</i>	-40°F to 158°F/-40°C to 70°C
<i>Humidity</i>	5 to 95% RH non-condensing
<i>Electrostatic Discharge</i>	15kV air, 8kV contact
<i>Dimensions</i>	5.50 in. Depth x 7.88 in. Width x 1.38 in. Height 14 cm Depth x 20.32 cm Width x 3.5 cm Height
<i>Housing</i>	Metal, plenum-rated housing (UL2043)
<i>Weight</i>	2.7 lbs

4.3 Electrical Characteristics

The AP7131 and AP7131N model Access Points have the following electrical characteristics:

<i>Operating Voltage</i>	48VDC (compatible with POE .3af/.3at Draft)
<i>Operating Current</i>	Not to exceed 750mA @ 48VDC
<i>Power</i>	48VDC, 0.75A

4.4 AP7131 Radio Characteristics

An AP7131 model Access Point has the following radio characteristics:

<i>Operating Channels</i>	All channels from 4920 MHz to 5825 MHz except channel 52 -64 Channels 1-13 (EU), Channels 1-11 (US/Canada) Channel 14 (2484 MHz) Japan only Actual operating frequencies depend on regulatory
<i>Data Rates Supported</i>	802.11g: 1,2,5.5,11,6,9,12,18,24,36,48, and 54Mbps 802.11a: 6,9,12,18,24,36,48, and 54Mbps 802.11n: MCS 0-15 up to 300Mbps
<i>Wireless Medium</i>	<i>Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM) Spatial multiplexing (MIMO)</i>
<i>Network Standards</i>	802.11a, 802.11b, 802.11g, 802.3, 802.11n (Draft 2.0)
<i>Maximum Available Transmit Power</i>	20dBm
<i>Transmit Power Adjustment</i>	1dB increments
<i>Antenna Configuration</i>	2x3 or 3x3

4.5 AP7131N Radio Characteristics

An AP7131N model Access Point has the following radio characteristics:

<i>Operating Channels</i>	All channels from 4920 MHz to 5825 MHz except channel 52 -64 Channels 1-13 (EU), Channels 1-11 (US/Canada) Channel 14 (2484 MHz) Japan only Actual operating frequencies depend on regulatory
<i>Data Rates Supported</i>	802.11g: 1,2,5.5,11,6,9,12,18,24,36,48, and 54Mbps 802.11a: 6,9,12,18,24,36,48, and 54Mbps 802.11n: MCS 0-15 up to 300Mbps
<i>Wireless Medium</i>	<i>Direct Sequence Spread Spectrum</i> (DSSS), <i>Orthogonal Frequency Division Multiplexing</i> (OFDM) <i>Spatial multiplexing</i> (MIMO)
<i>Network Standards</i>	802.11a, 802.11b, 802.11g, 802.3, 802.11n (Draft 2.0)
<i>Maximum Available Transmit Power</i>	Maximum available conducted transmit power per chain: 2.4Ghz: + 23dBm Maximum available conducted transmit power all chains: 2.4GHz: + 27.7dBm Maximum available conducted transmit power per chain: 5.2Ghz: + 20 dBm Maximum available conducted transmit power all chains: 5.2GHz: + 24.7dBm
<i>Transmit Power Adjustment</i>	1dB increments
<i>Antenna Configuration</i>	2x3 or 3x3

5 Regulatory Information

5.1 Regulatory Overview

These devices (AP-7131 and AP-7131N) are approved under Motorola Solutions, Inc.

All Motorola Solutions devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required. Any changes or modifications to Motorola Solutions equipment, not expressly approved by Motorola Solutions, could void the user's authority to operate the equipment.

Local language translations are available at the following website:

<http://supportcentral.motorolasolutions.com/support/product/manuals.do>.

Any changes or modifications to Motorola Solutions equipment, not expressly approved by Motorola Solutions, could void the user's authority to operate the equipment.

Motorola Solutions Access Points must be professionally installed and configured so that the Radio Frequency Output Power will not exceed the maximum allowable limit for the country of operation.

Antennas: Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could cause damage and may violate regulations. Use of an unapproved antenna is illegal under FCC regulations subjecting the end user to fines and equipment seizure.

5.2 Wireless Device Country Approvals

Regulatory markings, subject to certification, are applied to the device signifying the radio(s) is/are approved for use in the following countries: United States, Canada, Japan, China, S. Korea, Australia, and Europe.

Please refer to the *Declaration of Conformity* (DoC) for details of other country markings. This is available at

<http://www.motorolasolutions.com/doc>

Note: For 2.4GHz or 5GHz Products: Europe includes, Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.



Operation of the device without regulatory approval is illegal.

5.3 Health and Safety Recommendations



5.3.1 Warnings for the use of Wireless Devices

Please observe all warning notices with regard to the usage of wireless devices.

5.3.2 Potentially Hazardous Atmospheres – Fixed Installations

You are reminded of the need to observe restrictions on the use of radio devices in fuel depots, chemical plants etc. and areas where the air contains chemicals or particles (such as grain, dust, or metal powders).

5.3.3 Safety in Hospitals



Wireless devices transmit radio frequency energy and may affect medical electrical equipment. When installed adjacent to other equipment, it is advised to verify that the adjacent equipment is not adversely affected.

Pacemakers

Pacemaker manufacturers recommended that a minimum of 15cm (6 inches) be maintained between a handheld wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations by Wireless Technology Research.

Persons with Pacemakers:

- Should ALWAYS keep the device more than 15cm (6 inches) from their pacemaker when turned ON.
- Should not carry the device in a breast pocket.
- Should use the ear furthest from the pacemaker to minimize the potential for interference.
- If you have any reason to suspect that interference is taking place, turn OFF your device.

Other Medical Devices

Please consult your physician or the manufacturer of the medical device, to determine if the operation of your wireless product may interfere with the medical device.

5.4 RF Exposure Guidelines

5.4.1 Safety Information

Reducing RF Exposure—Use Properly

Only operate the device in accordance with the instructions supplied.

Remote and Standalone Antenna Configurations

To comply with FCC RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand-alone desktop or similar configurations must operate with a minimum separation distance of 28 cm from all persons.

5.5 Power Supply

Use only a Motorola Solutions approved power supply output rated at 48Vdc and minimum 0.75A. The power supply shall be Listed to UL/CSA 60950-1; and certified to IEC60950-1 and EN60950-1 with SELV outputs.

Use only a Motorola approved power supply. Use of alternative power supply will invalidate any approval given to this device and may be dangerous.

5.6 Wireless Devices - Countries

Use only a Motorola approved power supply. Use of alternative power supply will invalidate any approval given to this device and may be dangerous.

Country Selection

Select only the country in which you are using the device. Any other selection will make the operation of this device illegal.

Operation in the US

The use on UNII (Unlicensed National Information Infrastructure) Band 1 5150-5250 MHz is restricted to indoor use only, any other use will make the operation of this device illegal.

The available channels for 802.11 b/g operation in the US are Channels 1 to 11. The range of channels is limited by firmware.

The FCC requires that the FCC ID label be placed on the outside of the device, if the device is placed in a protective enclosure that requires tools to access, a permanent label with FCC ID must be placed on the exterior of the protective enclosure.

5.7 Radio Frequency Interference Requirements—FCC



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

Radio Transmitters (Part 15)

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.

5.8 Radio Frequency Interference Requirements – Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Devices using the 5.470 – 5.725 GHz band shall not be capable of transmitting in the band 5.60-5.65 GHz in Canada, make sure that Canada is the country selected during setup to ensure compliance.

5.8.1 Radio Transmitters

This device complies with RSS 210 of Industry & Science Canada. 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.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that permitted for successful communication.

This device has been designed to operate with the antennas listed in section 2.3.1 of this guide, and having a maximum gain of 15.5 dBi (2.4 GHz) and 13 dBi (5 GHz) for radios one and two. Antennas not included in this list, or having a gain greater than 15.5 dBi (2.4 GHz) and 13 dBi (5 GHz) for radios one and two, are prohibited for use with this device. This device has been designed to operate with the antennas listed in section 2.3.1 of this guide, and having a maximum gain of 3.03 dBi (2.4 GHz) and 4.06 dBi (5 GHz) for radio three. Antennas not included in this list, or having a gain greater than 3.03 dBi (2.4 GHz) and 4.06 dBi (5 GHz) for radio three, are strictly prohibited for use with this device. The required antenna impedance is 50 ohms

Label Marking: The Term "IC:" before the radio certification only signifies that Industry Canada technical specifications were met.

Cet appareil se conforme à RSS 210 d'Industrie & Canada de Science. L'opération est assujetti au suivre deux conditions : (1) cet appareil ne peut pas causer l'intervention nuisible et (2) cet appareil doit accepter de l'intervention reçue, y compris l'intervention qui peut causer l'opération non désirée réduire l'intervention de radio potentielle aux autres utilisateurs, le type d'antenne et son gain devrait être si choisie que l'équivalent a rayonné d'isotropiquement le pouvoir (EIRP) n'est pas plus que qui a permis pour l'appareil de communication. ce réussi a été conçu pour fonctionner avec les antennes énumérées dans la section 2.3.1 de Ce guide, et avoir un gain maximum de 15,5 dBi (2,4 GHz) et 13 dBi (5 GHz) pour les radios un et deux. Les antennes n'ont pas inclus dans cette liste, ou avoir un gain plus grand que 15,5 dBi (2,4 GHz) et 13 dBi (5 GHz) pour les radios un et deux, sont interdits pour l'usage avec cet appareil. Cet appareil a été conçu pour fonctionner avec les antennes énumérées dans la section 2.3.1 de ce guide, et avoir un gain maximum de 3,03 dBi (2,4 GHz) et 4,06 dBi (5 GHz) pour la radio trois. Les antennes n'ont pas inclus dans cette liste, ou avoir un gain plus grand que 3,03 dBi (2,4 GHz) et 4,06 dBi (5 GHz) pour la radio trois, sont strictement interdits pour l'usage avec cet appareil. L'impédance exigée d'antenne est 50 ohms.

Etiqueter Marquer : Le Terme " IC : " avant que la certification de radio signifie que Canada d'Industrie spécifications techniques ont été rencontrées.

This device has been designed to operate with the antennas listed in the *Enterprise Wireless LAN Antenna Specification Guide*. Refer to the guide at <http://supportcentral.motorolasolutions.com/support/product/manuals.do>.

5.9 CE Marking and European Economic Area (EEA)



The use of 2.4 GHz RLAN's, for use through the EEA, have the following restrictions:

- Maximum radiated transmit power of 100 mW EIRP in the frequency range 2.400 -2.4835 GHz.
- France, outside usage is restricted to 2.4 – 2.454 GHz.
- Italy requires a user license for outside usage.

5.9.1 Statement of Compliance

Motorola Solutions hereby, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A Declaration of Conformity may be obtained from <http://www.motorolasolutions.com/doc>.

5.9.2 Japan (VCCI) -Voluntary Control Council for Interference

Class B ITE

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

5.9.3 Korea Warning Statement for Class B

기종별	사용자안내문
B 급 기기 (가정용 방송통신기기)	이 기기는 가정용 (B 급) 으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.
Class B (Broadcasting Communication Device for Home Use)	This device obtained EMC registration mainly for home use (Class B) and may be used in all areas.

5.9.4 Other Countries

Australia

Use of 5GHz RLAN's in Australia is restricted in the following band 5.50 – 5.65GHz.

Brazil

Regulatory declarations for AP7131N - BRAZIL

Note: The certification mark applied to the AP7131N is for Restrict Radiation Equipment. This equipment operates on a secondary basis and does not have the right for protection against harmful interference from other users including same equipment types. Also this equipment must not cause interference to systems operating on primary basis.

For more information consult the website www.anatel.gov.br

Declarações Regulamentares para AP7131N - Brasil

Nota: A marca de certificação se aplica ao Transceptor, modelo AP7131N. Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário. Para maiores informações sobre ANATEL consulte o site: www.anatel.gov.br

Chile

Este equipo cumple con la Resolución No 403 de 2008, de la Subsecretaria de telecomunicaciones, relativa a radiaciones electromagnéticas.

This device complies with the Resolution Not 403 of 2008, of the Undersecretary of telecommunications, relating to electromagnetic radiation.

Mexico

Restrict Frequency Range to: 2.450 – 2.4835 GHz.

Taiwan

NOTICE!

According to: Administrative Regulations on Low Power Radio Waves Radiated Devices

Article 12

Without permission granted by the DGT, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to a approved low power radio-frequency devices.

Article 14

The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved. The said legal communications means radio communications is operated in compliance with the Telecommunications Act. The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

臺灣

低功率電波輻射性電機管理辦法

第十二條

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電通信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

限制頻率範圍是：2.400 - 2.4835 GHz。 最大發射功率：27dBm
 5.250 - 5.350 GHz。 最大發射功率：17dBm
 5.725 - 5.850 GHz。 最大發射功率：24dBm

2.4GHz：11個通道
 5GHz： 8個通道

Wireless device operate in the frequency band of 5.25-5.35 GHz, limited for Indoor use only.

在 5.25-5.35 赫茲頻帶內操作之無線資訊傳輸設備，限於室內使用

Korea

For a radio equipment using 2400~2483.5MHz or 5725~5825MHz, the following two expressions should be displayed:

1. This radio equipment can be interfered during operation.

당해 무선설비는 운용 중 전파혼신 가능성이 있음

2. This radio equipment cannot provide a service relevant to the human life safety.

당해 무선설비 는전파혼 신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다 .

5.10 Waste Electrical and Electronic Equipment (WEEE)



English: For EU Customers: All products at the end of their life must be returned to Motorola for recycling. For information on how to return product, please go to: <http://www.motorola.com/recycling/weee>.

Français: Clients de l'Union Européenne: Tous les produits en fin de cycle de vie doivent être retournés à Motorola pour recyclage. Pour de plus amples informations sur le retour de produits, consultez : <http://www.motorola.com/recycling/weee>.

Español: Para clientes en la Unión Europea: todos los productos deberán entregarse a Motorola al final de su ciclo de vida para que sean reciclados. Si desea más información sobre cómo devolver un producto, visite: <http://www.motorola.com/recycling/weee>.

Bulgarian: За клиенти от ЕС: След края на ползения им живот всички продукти трябва да се връщат на Motorola за рециклиране. За информация относно връщането на продукти, моля отидете на адрес: <http://www.motorola.com/recycling/weee>.

Deutsch: Für Kunden innerhalb der EU: Alle Produkte müssen am Ende ihrer Lebensdauer zum Recycling an Motorola zurückgesandt werden. Informationen zur Rücksendung von Produkten finden Sie unter <http://www.motorola.com/recycling/weee>.

Italiano: per i clienti dell'UE: tutti i prodotti che sono giunti al termine del rispettivo ciclo di vita devono essere restituiti a Motorola al fine di consentire il riciclaggio. Per informazioni sulle modalità di restituzione, visitare il seguente sito Web: <http://www.motorola.com/recycling/weee>.

Português: Para clientes da UE: todos os produtos no fim de vida devem ser devolvidos à Motorola para reciclagem. Para obter informações sobre como devolver o produto, visite: <http://www.motorola.com/recycling/weee>.

Nederlands: Voor klanten in de EU: alle producten dienen aan het einde van hun levensduur naar Motorola te worden teruggezonden voor recycling. Raadpleeg <http://www.motorola.com/recycling/weee> voor meer informatie over het terugzenden van producten.

Polski: Klienci z obszaru Unii Europejskiej: Produkty wycofane z eksploatacji należy zwrócić do firmy Motorola w celu ich utylizacji. Informacje na temat zwrotu produktów znajdują się na stronie internetowej <http://www.motorola.com/recycling/weee>.

Čeština: Pro zákazníky z EU: Všechny produkty je nutné po skončení jejich životnosti vrátit společnosti Motorola k recyklaci. Informace o způsobu vrácení produktu najdete na webové stránce: <http://www.motorola.com/recycling/weee>.

Eesti: EL klientidele: kõik tooted tuleb nende eluea lõppedes tagastada taaskasutamise eesmärgil Motorola'ile. Lisainformatsiooni saamiseks toote tagastamise kohta külastage palun aadressi: <http://www.motorola.com/recycling/weee>.

Magyar: Az EU-ban vásárlóknak: Minden tönkrement terméket a Motorola vállalathoz kell eljuttatni újrahasznosítás céljából. A termék visszajuttatásának módjával kapcsolatos tudnivalóért látogasson el a <http://www.motorola.com/recycling/weee> weboldalra.

Svenska: För kunder inom EU: Alla produkter som uppnått sin livslängd måste returneras till Motorola för återvinning. Information om hur du returnerar produkten finns på <http://www.motorola.com/recycling/weee>.

Suomi: Asiakkait Euroopan unionin alueella: Kaikki tuotteet on palautettava kierrätettäväksi Motorola-yhtiöön, kun tuotetta ei enää käytetä. Lisätietoja tuotteen palauttamisesta on osoitteessa <http://www.motorola.com/recycling/weee>.

Dansk: Til kunder i EU: Alle produkter skal returneres til Motorola til recirkulering, når de er udtjent. Læs oplysningerne om returnering af produkter på: <http://www.motorola.com/recycling/weee>.

Ελληνικά: Για πελάτες στην Ε.Ε.: Όλα τα προϊόντα, στο τέλος της διάρκειας ζωής τους, πρέπει να επιστρέφονται στην Motorola για ανακύκλωση. Για περισσότερες πληροφορίες σχετικά με την επιστροφή ενός προϊόντος, επισκεφθείτε τη διεύθυνση <http://www.motorola.com/recycling/weee> στο Διαδίκτυο.

Malti: Għal klijenti fl-EU: il-prodotti kollha li jkunu waslu fl-aħħar tal-ħajja ta' l-użu tagħhom, iridu jġu rritornati għand Motorola għar-riċiklaġġ. Għal aktar taġħrif dwar kif għandek tirritorna l-prodott, jekk jogħġbok żur: <http://www.motorola.com/recycling/weee>.

Românesc: Pentru clienții din UE: Toate produsele, la sfârșitul duratei lor de funcționare, trebuie returnate la Motorola pentru reciclare. Pentru informații despre returnarea produsului, accesați: <http://www.motorola.com/recycling/weee>.

Slovenski: Za kupce v EU: vsi izdelki se morajo po poteku življenjske dobe vrniti podjetju Motorola za reciklažo. Za informacije o vračilu izdelka obiščite: <http://www.motorola.com/recycling/weee>.

Slovenčina: Pre zákazníkov z krajín EU: Všetky výrobky musia byť po uplynutí doby ich životnosti vrátené spoločnosti Motorola na recykláciu. Bližšie informácie o vrátení výrobkov nájdete na: <http://www.motorola.com/recycling/weee>.

Lietuvių: ES vartotojams: visi gaminiai, pasibaigus jų eksploatacijos laikui, turi būti gražinti utilizuoti į kompaniją „Motorola“. Daugiau informacijos, kaip gražinti gaminį, rasite: <http://www.motorola.com/recycling/weee>.

Latviešu: ES klientiem: visi produkti pēc to kalpošanas mūža beigām ir jānogādā atpakaļ Motorola otrreizējai pārstrādei. Lai iegūtu informāciju par produktu nogādāšanu Motorola, lūdzu, skatiet: <http://www.motorola.com/recycling/weee>.

Türkçe: AB Müşterileri için: Kullanım süresi dolan tüm ürünler geri dönüştürme için Motorola'ya iade edilmelidir. Ürünlerin nasıl iade edileceği hakkında bilgi için lütfen şu adresi ziyaret edin: <http://www.motorola.com/recycling/weee>.

5.11 TURKISH WEEE Statement of Compliance

EEE Yönetmeliğine Uygundur

6 Motorola Solutions Support Center

If you have a problem with your equipment, contact support for your region.

Contact information is available at: <http://www.motorolasolutions.com/support>.

When contacting Motorola Solutions support, please provide the following information:

- Serial number of the unit
- Model number or product name
- Software type and version number

Motorola Solutions responds to calls by e-mail, telephone, or fax within the time limits set forth in support agreements. If you purchased your product from a Motorola Solutions business partner, contact that business partner for support.

Customer Support Web Sites

The Motorola Solutions Support Central Web site, located at <http://supportcentral.motorolasolutions.com/> provides information and online assistance including developer tools, software downloads, product manuals and online repair requests.

Manuals

<http://supportcentral.motorolasolutions.com/support/produit/manuals.do>

General Information

Obtain additional information by contacting Motorola Solutions at:

Telephone (North America): 1-800-722-6234

Telephone (International): +1-631-738-5200

Website: <http://www.motorolasolutions.com>

7 AP7131 Series ROHS Compliance



有毒有害物质或元素						
部件名称 (Parts)	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	X	O	O	O	O	O
电路模块 (Circuit Modules)	X	O	O	O	O	O
电缆及电缆组件 (Cables and Cable Assemblies)	X	O	O	O	O	O
塑料和聚合物部件 (Plastic and Polymeric Parts)	O	O	O	O	O	O
光学和光学组件 (Optics and Optical Components)	O	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O

O：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

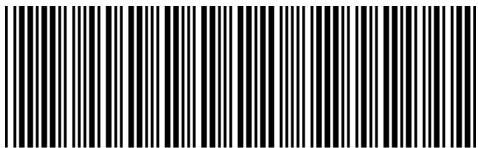
对销售之日的所售产品，本表表示，公司供应链的电子信息产品可能包含这些物质。注意：在所售产品中可能会也可能不会含有所有所列的部件。

This table was created to comply with China RoHS requirements for Motorola Solution's AP7131 and AP7131N model Access Points.



Motorola Solutions, Inc.
1301 E. Algonquin Rd.
Schaumburg, IL 60196-1078, U.S.A.
<http://www.motorolasolutions.com>

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners.
© 2013 Motorola Solutions, Inc. All Rights Reserved.



MN000037A01
Revision A June 2013

