



The MSM422 is a Wi-Fi Alliance authorized Wi-Fi CERTIFIED 802.11a/b/g and 802.11n product. The Wi-Fi CERTIFIED Logo is a certification mark of the Wi-Fi Alliance.

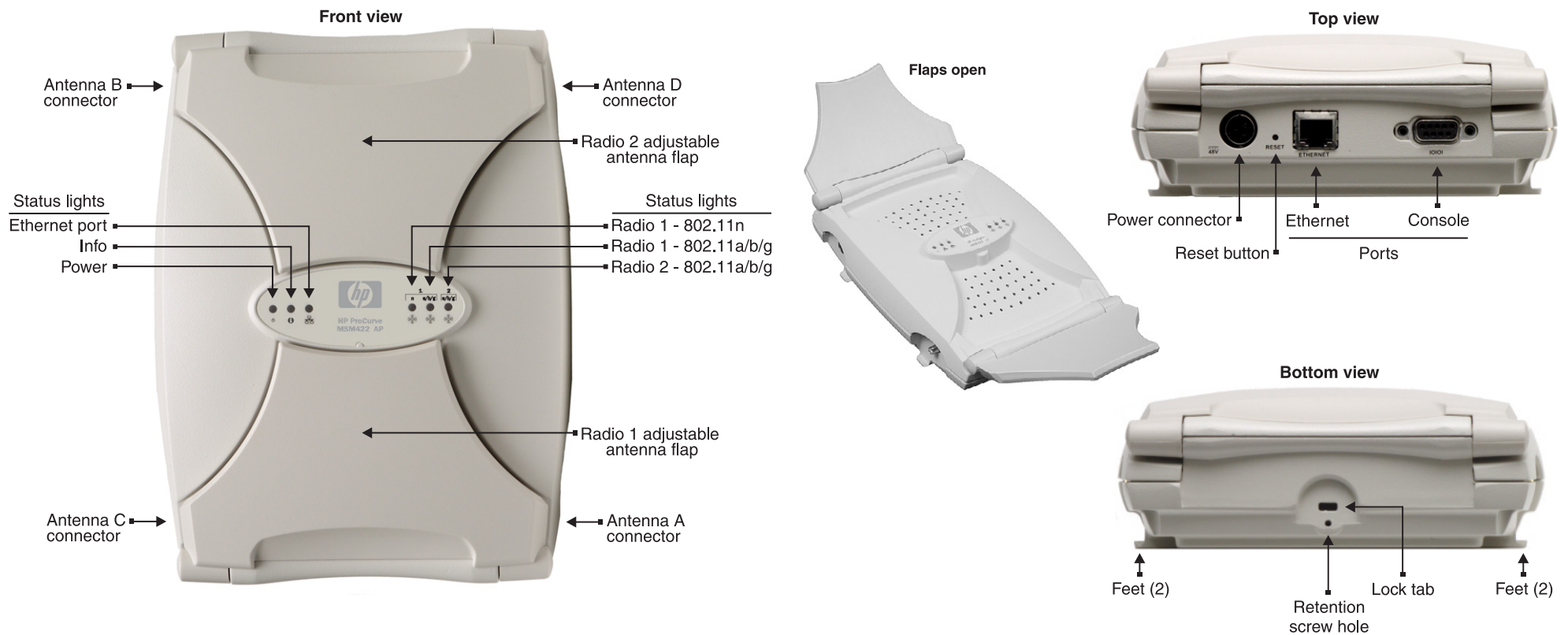


MSM422 Access Point Quickstart

This Quickstart shows you how to get started using the MSM422 Access Point (US J9358A, WW J9359A).

After reading this Quickstart, you can visit www.hp.com/go/procurve/manuals and download documents of particular interest such as the *MSM3xx / MSM4xx Access Points Management and Configuration Guide* and the *MSM7xx Controllers Management and Configuration Guide*.

Hardware overview



Package contents

MSM422, documentation, mounting bracket, four mounting screws with wall anchors, retention screw (4-40x1/4"), two T-bar clips with four nuts.

Radios and antennas

The MSM422 contains two radios. The lower flap contains three antennas for Radio 1, which by default is set to 802.11n (5 GHz) mode. The upper flap contains two antennas for Radio 2, which by default is set to 802.11b/g mode. Optional external antennas are available from HP ProCurve. On the HP ProCurve Website, see the *Accessories* section for the MSM422.

Radio	Antenna flap	External connector	Radio mode	
			Default	Other choices
1	Lower	A, B, C	n/a (5 GHz)	n (5 GHz), n (2.4 GHz), n/a, n/g, n/b/g, b, b/g, g, a
2	Upper	D	b/g	b, g, a, a turbo

Ports

The MSM422 provides two ports.

- **Ethernet port:** An auto-sensing 10/100/1000 Ethernet port with an RJ-45 connector. The port supports Power over Ethernet (PoE) 802.3af.
- **Console port:** A standard console (serial) port with a DB-9 (female) connector. To connect to a computer, use a standard (straight-through) serial cable (male-to-female). For details, see *Console Ports* in the *MSM3xx / MSM4xx Access Points Management and Configuration Guide*.

Reset button

Press and quickly release the button to reset the MSM422. To reset the MSM422 to factory defaults, press the button until the status lights blink three times, then release.

Note: Following a reset to factory defaults, the MSM422 starts up in controlled mode.

About controlled mode and autonomous mode

The MSM422 can operate in one of two modes: controlled (the default) or autonomous. Switching modes resets all configuration settings to factory defaults.

- **Controlled mode:** To become operational, the MSM422 must establish a management tunnel with an MSM7xx Controller. The controller manages the MSM422 and provides all configuration settings. Discovery of the controller is automatic if default settings are used on the MSM422 and the controller, and both devices are on the same subnet. See *Working with controlled APs* in the *MSM7xx Controllers Management and Configuration Guide*.

- **Autonomous mode:** Once switched to autonomous mode, the MSM422 operates as a stand-alone AP. An autonomous MSM422 is configured and managed via its web-based management tool as described in *Initial configuration (autonomous mode)* on page 4.

Status light behavior in controlled mode

During startup/discovery in controlled mode, the MSM422 status lights provide the following information:

Status light behavior	Description
Power light blinks once every two seconds.	The MSM422 is starting up.
Power light blinks once per second.	The MSM422 is looking for an IP address, or building the list of VLANs on which to perform discovery. The management tool is available until discovery occurs.
Power light, Info light, and Ethernet light blink in sequence from left to right.	The MSM422 has obtained an IP address and is attempting to discover a controller.
Power light is on. Info and Ethernet lights blink alternately until the secure management tunnel is established.	The MSM422 has found a controller and is attempting to establish a secure management tunnel with it.
Power light and Info light blink alternately and quickly. Ethernet light is off.	The MSM422 has received a discovery reply from two or more controllers with the same priority setting. The MSM422 is unable to connect with either controller until the priority conflict is resolved.
Power light and one Radio light blink slowly. (This will be the light for the radio on which the local mesh link is being established.)	The MSM422 is attempting to establish a local mesh link to a master node.
Power light and Ethernet light blink slowly.	The MSM422 is attempting to establish wired connectivity.

Once the discovery process is complete, and the MSM422 has established a secure management tunnel to a controller, the Power light remains on and the Ethernet and Radio lights blink to indicate the presence of traffic.

Status light behavior in autonomous mode

In autonomous mode, the status lights provide the following information:

Light	State	Description
Power	Off	The MSM422 has no power.
	On	The MSM422 is powered on and is fully operational.
	Blinking	The MSM422 is starting up. If the Power light continues to blink after several minutes, it indicates that the software failed to load. Reset or power cycle the MSM422. If this condition persists, contact HP ProCurve Customer Care.
Info	On	The MSM422 is fully operational.
Ethernet	Off	The Port is not connected or there is no activity.
	Blinking	The port is transmitting or receiving data.
Radio 1, 2	Blinking	The radio is transmitting or receiving data.

Important information to read before installing

Warning: PROFESSIONAL INSTALLATION REQUIRED

Prior to installing or using the MSM422, consult with a professional installer trained in RF installation and knowledgeable in local regulations including building and wiring codes, safety, channel, power, indoor/outdoor restrictions, and license requirements for the intended country. It is the responsibility of the end user to ensure that installation and use comply with local safety and radio regulations.

Surge protection and grounding: If you plan on connecting an outdoor antenna to the MSM422, make sure that proper lightning surge protection and grounding precautions are taken according to local electrical code. Failure to do so may result in personal injury, fire, equipment damage, or a voided warranty. The HP ProCurve hardware warranty provides no protection against damage caused by static discharge or a lightning strike.

Cabling: You must use the appropriate cables, and where applicable, surge protection, for your given region. For compliance with EN55022 Class-B emissions requirements, use shielded Ethernet cables. Cat 5e (or better) cabling is required.

Plenum installation: The MSM422 can be installed in a plenum (UL2043 rating). It should be installed in a similar orientation as in a ceiling installation. However, it is left to a qualified installer to determine how to install/secure the MSM422 in a plenum in an appropriate and safe manner. Plenum-rated cables and attachment hardware must be used.

Country of use: In some regions, you are prompted to select the country of use during setup. Once the country has been set, the MSM422 will automatically limit the available wireless channels, ensuring compliant operation in the selected country. Entering the incorrect country may result in illegal operation and may cause harmful interference to other systems. See *Notice for European Union* on page 6.

Caution: External Antennas: When using an external antenna, depending on the country of use, the antenna selected, and your radio settings, it may be mandatory to reduce the radio transmission power level to maintain regulatory compliance. For specific power limits for your country, consult the *Antenna Power-Level Setting Guide* available on the HP ProCurve manuals page for the MSM3xx/4xx Access Points at www.hp.com/go/procurve/manuals.

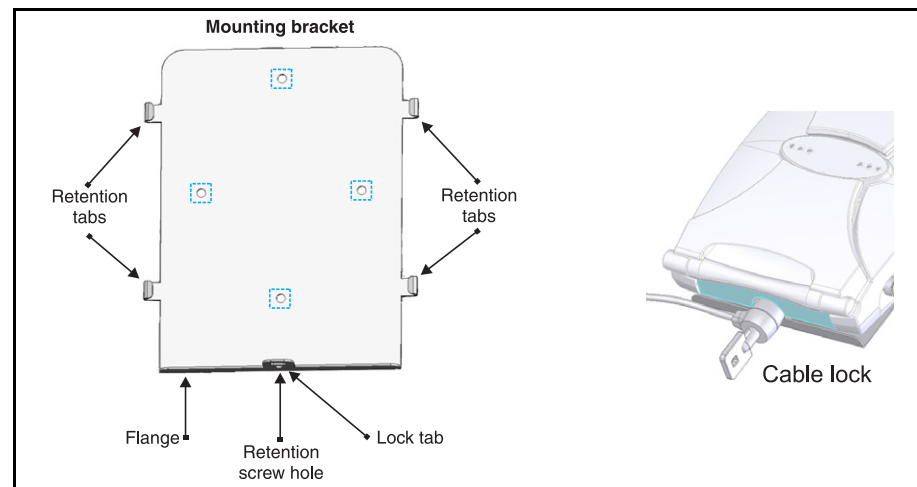
To set the radio power transmission level, for controlled access points see *Transmit power control* in the *MSM7xx Controllers Management and Configuration Guide*. For autonomous access points, see *Transmit power control* in the *MSM3xx / MSM4xx Access Points Management and Configuration Guide*.

Safety: Take note of the following safety information during installation.

- If your network covers an area served by more than one power distribution system, be sure all safety grounds are securely interconnected.
- Network cables may occasionally be subject to hazardous transient voltages (caused by lightning or disturbances in the electrical power grid).
- Handle exposed metal components of the network with caution.
- The MSM422 is powered-on when the Ethernet port is plugged into a PoE power source or when an external power supply is connected.
- The MSM422 and all interconnected equipment must be installed indoors within the same building (except for outdoor models / antennas), including all PoE-powered network connections as described by Environment A of the IEEE 802.3af standard.

Installation

Mounting on a wall

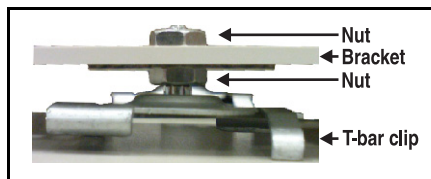


1. Using the supplied wall anchors and screws, attach the mounting bracket vertically to a wall with the flange at the bottom. Use at least two opposing screw holes. Leave enough space above the MSM422 for cable access and flap extension.
2. Hold the MSM422 about an inch above the flange, then slide the MSM422 into the bracket so that it rests on the flange and its feet are held in place by the retention tabs.
3. Using the retention screw, secure the MSM422 to the bracket. Optionally, you also can use a Kensington-type cable lock.
4. Connect the Ethernet cable to the MSM422 Ethernet port.

Mounting on a suspended ceiling

The MSM422 can be mounted on a suspended ceiling using the supplied T-bar clips.

1. As illustrated, place one nut on the threaded post of each clip before the clip is mounted on the bracket.
2. Attach the two T-bar clips to the suspended ceiling T-bar at the desired mounting position, either 3 5/8 inches (9.2 cm) or 5 1/8 inches (13 cm) apart on center.
3. Attach the bracket to the two T-bar clips, then secure each with a second nut.
4. Connect the Ethernet cable to the MSM422 Ethernet port.
5. Position the MSM422 against the bracket so that its feet are next to the retention tabs.
6. Slide the MSM422 so that the feet are held in place by the retention tabs.
7. Using the retention screw, secure the MSM422 to the bracket. Optionally, you also can use a Kensington-type cable lock.
8. Verify that the MSM422 is firmly anchored before letting go of it.



Installing in a plenum

See *Plenum installation* under *Important information to read before installing* on page 3.

Antenna position

The antenna flaps can be adjusted to optimize radio performance. Start with the following positions, then adjust as needed. (See also the *MSM422 Antenna Technical Note*.)

- For wall mount, close or fully open the flaps.
- For ceiling mount, close the flaps or point them toward the floor (90°).

Powering the MSM422

The MSM422 can be powered by:

- A 10/100 or 10/100/1000 PoE-enabled switch. Various PoE-enabled switches are available from HP ProCurve.
- An HP ProCurve 1-Port Power Injector (J9407A).
- An HP ProCurve MSM422 Power Supply (J9406A).

Caution: If the MSM422 will be powered by a user-supplied PoE power injector, use only a gigabit-compatible power injector. PoE injectors designed for 10/100 networks only are NOT compatible with the MSM422.

Initial configuration (autonomous mode)

This procedure describes how to switch a factory-default MSM422 to autonomous mode and then perform its initial configuration that enables you to establish a wireless connection through the MSM422 to the Internet.

Note: For controlled mode configuration, instead see *Working with controlled APs* in the *MSM7xx Controllers Management and Configuration Guide*.

In autonomous mode, the MSM422 is managed via its web-based management tool using at least Microsoft Internet Explorer 7/8 or Mozilla Firefox 3.x.

Caution: **Wireless Security:** For initial configuration convenience, a factory-default MSM422 that has been switched to autonomous mode has all wireless security options disabled. It is strongly recommended that after performing this procedure, you enable a wireless security option to properly safeguard the wireless network from intruders. See *Wireless protection* in the *MSM3xx / MSM4xx Access Points Management and Configuration Guide*.

Note: Do not power on the MSM422 until directed.

A. Configure your computer

1. Disconnect your computer LAN port and configure it to use a static IP address in the range **192.168.1.2** to **192.168.1.254**, and a subnet mask of **255.255.255.0**. Set the default gateway to **192.168.1.1**, and DNS server to **192.168.1.1**. For example to do this in Windows Vista, use **Control Panel > Network and Sharing Center > Manage Network Connections > Local Area Connection**, right-click **Properties** then select **Internet Protocol Version 4 (TCP/IPv4) > Properties**.
2. Disable any wireless connection on your computer.

B. Connect the cables and power on the MSM422

1. Connect the cables:
 - If using a PoE switch, use Ethernet cables to connect your computer and the MSM422 to an unused factory-default PoE switch.
 - If using a PoE injector, use Ethernet cables to connect your computer to the data in port of the PoE injector and the MSM422 to the data and power out port of the PoE injector.
 - If you are using a power supply, use an Ethernet cable to connect your computer to the MSM422 Ethernet port.

2. Power on the MSM422:

- If using a PoE switch or injector, power it on.
- If using a power supply, connect it to the MSM422 then power on the supply.

Initially, the MSM422 power light will blink once every two seconds. Wait approximately a minute until it begins blinking once per second before proceeding to the next step.

C. Switch the MSM422 to autonomous mode

A factory-default MSM422 is assumed.

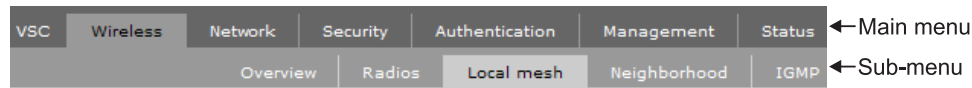
1. In a Web browser, enter the address: **https://192.168.1.1**.
2. At the security certificate prompt, select the option that allows you to continue to the Website.
To eliminate the security warning, you need to replace the default certificate that is installed on the MSM422. See *About certificate warnings* in the *MSM3xx / MSM4xx Access Points Management and Configuration Guide*.
3. On the Login page, specify **admin** for **Username** and **Password** and then select **Login**. The MSM422 management tool home page opens.
4. Select **Switch to Autonomous Mode** and confirm the change. The MSM422 restarts in autonomous mode.

Note: To avoid a delay after switching modes, clear the ARP (address resolution protocol) cache on your computer. In Windows for example, from the **Windows Start** menu, select **Run** and enter “arp -d” (without the quotes). Select **OK**.

D. Log in

1. Wait until the Power light stops blinking and remains on.
2. On the Login page, specify **admin** for **Username** and **Password** and then select **Login**.
3. On the License Agreement page, read the agreement and select **Accept License Agreement**.
4. The registration page appears. It is recommended that you register later by selecting **Maintenance > Registration**.
5. If a **Country** prompt appears, select the country in which the MSM422 will operate.
Caution: The correct country must be selected. See *Country of use* on page 3.
6. At the password prompt it is recommended that you change the default password and select **Save**. Passwords must be at least six characters long and include four different characters.

The management tool is organized with menus and sub-menus. Instructions for making menu selections, such as “select **Wireless > Local mesh**” instruct you to select the **Wireless** menu and then the **Local mesh** sub-menu, as follows:



E. Assigning an IP address to the MSM422

By default the MSM422 operates as a DHCP client. This means that if the network has a DHCP server, the MSM422 will automatically receive a new IP address in place of its default address of 192.168.1.1 upon connecting to the network. Use one of the following methods to assign an IP address to the MSM422:

- **Pre-configure the DHCP server** to assign a specific IP address to the MSM422. To do this you need to specify the MSM422 Ethernet MAC address and a reserved IP address on the DHCP server. The MSM422 Ethernet MAC address is printed on the MSM422 label identified as **Ethernet Base MAC**, and listed on the management tool **Home** page as **Ethernet base MAC address**.
- **Let the DHCP server automatically assign an IP address.** By default, the DHCP server will assign an IP address once the MSM422 connects to the network. Once the DHCP server has assigned the MSM422 an IP address, you can then find the IP address of the MSM422 by looking for its Ethernet base MAC address in the DHCP server log. For example after Step F.4 below, you could go to the DHCP server log to retrieve the IP address assigned to the MSM422.
- **Assign a static IP address to the MSM422.** The address must be on the same subnet as the network to which the MSM422 will connect.
 1. Select **Network > DNS**, and set the DNS server address. Select **Save**.
 2. Select **Network > Ports > Bridge port**.
 3. Select **Static** and then **Configure**. Configure settings as follows:
 - **IP address:** Set an address that is on the same subnet as the network to which the MSM422 will connect once installed. Respect any DHCP server-mandated static address ranges.
 - **Mask:** Set the corresponding mask for the IP address.
 - **Default gateway:** Set the IP address of the gateway on the network.
 4. Select **Save**. Connection to the management tool is lost.

F. Test the wireless network

For the purposes of this example, the network must have a DHCP server and an Internet connection. Broadband routers typically include a DHCP server.

1. Disconnect your computer from the PoE switch or injector or the MSM422.
2. Power off the MSM422:

- If using a PoE switch or injector, disconnect the Ethernet cable from the MSM422.
 - If using a power supply, disconnect it.
3. Use an Ethernet cable to connect the switch or the data in port of the injector to the network.
 4. Reconnect and power on the MSM422:
 - If using a PoE switch or injector, use an Ethernet cable to reconnect the MSM422 to the PoE switch or the data and power out port of the injector.
 - If using a power supply, use an Ethernet cable to connect the MSM422 to the network, and reconnect the MSM422 power supply.
 5. Enable the wireless network interface of your computer, and verify that it is set to obtain an IP address automatically.

For example, to do this in Windows Vista, use **Control Panel > Network and Sharing Center > Manage Network Connections > Wireless Network Connection**, right-click **Properties** and select **Internet Protocol Version 4 (TCP/IPv4) > Properties**, and make sure that **Obtain an IP address automatically** and **Obtain a DNS server address automatically** are both enabled.
 6. By default, the MSM422 creates a wireless network named *HP ProCurve*. Connect your computer to this wireless network. For example, in Windows Vista from the **Start** menu, select **Connect to**, and then *HP ProCurve* from the list of available wireless networks. You may have to wait a short time for this wireless network name to appear in the wireless networks list.
 7. Confirm that you can browse the Internet using the wireless network.

G. Performing additional configuration

Configure your computer LAN port and connect it to the same network as the MSM422. Re-launch the MSM422 management tool at <https://<IP address>> where **<IP address>** is the MSM422 IP address from Step E above.

Note: See the Caution regarding WIRELESS SECURITY on page 4.

Enabling access to other resources

By default, the MSM422 only permits traffic that is addressed to the default gateway on the network (which enables you to connect to the Internet). To enable access to other resources:

1. Select **VSC > Profiles** and then select the **HP ProCurve** profile.
2. On the **Add/Edit Virtual Service Community** page clear the **Wireless security filters** checkbox.
3. Select **Save**.

Notice for USA

The following applies to Radio 1 only.

Warning: In the United States, operation on channels 100-140 in the 5470-5725 MHz band is restricted to indoor-use only. Outdoor operation on these channels is a strict violation of the FCC rules and can cause harmful interference to commercial radar communications. For outdoor operation, channels 100-140 must not be used. If using automatic channel assignment, add channels 100 through 140 to the Automatic channel exclusion list.

Notice for European Union

The following applies to Radio 2 only.

As of July 1 of 2010, wireless devices sold in the European Union must meet a more stringent Dynamic Frequency Selection (DFS) requirement for radar detection and avoidance. Compliance with version 1.5.1 of ETSI standard EN 301.893 is mandatory. To comply with this new requirement, several 5 GHz channels have been disabled by software version 5.4.x. Software version 5.4.x (and later) disables channels 52, 56, 60 and 64 in the 5250 to 5350 MHz band and channels 100, 104, 108, 112, 116, 132, 136 and 140 in the 5470 to 5725 MHz band. These channels remain available for use in other countries.

