



HPE Aruba Networking

503 Series Campus Access Points

Installation Guide



Hewlett Packard
Enterprise

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Hewlett Packard Enterprise Company
Attn: General Counsel
WW Corporate Headquarters
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United States of America.



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This document describes the hardware features of the HPE Aruba Networking 503 Series Campus Access Points. It provides a detailed overview of the physical and performance characteristics of each access point model and explains how to install the access point.

Guide Overview

- [Hardware Overview](#) provides a detailed hardware overview of the HPE Aruba Networking 503 Series Campus Access Points .
- [Installation](#) describes how to install the HPE Aruba Networking 503 Series Campus Access Points.
- [Electrical and Environmental Specifications](#) lists the HPE Aruba Networking 503 Series Campus Access Points's technical specifications, safety, and regulatory compliance information.

Related Documentation

You require the following documents for the complete management of HPE Aruba Networking 503 Series Campus Access Points.

- Latest document of the software user guide:
<https://www.arubanetworks.com/techdocs/ArubaDocPortal/content/cons-aos-home.htm>
- CLI bank: <https://www.arubanetworks.com/techdocs/CLI-Bank/Content/Home.htm>

Contacting Support

Table 1: *Contact Information*

Main Site	arubanetworks.com
Support Site	https://networkingsupport.hpe.com/home
Airheads Social Forums and Knowledge Base	community.arubanetworks.com
North American Telephone	1-800-943-4526 (Toll Free) 1-408-754-1200
International Telephone	arubanetworks.com/support-services/contact-support/
Software Licensing Site	lms.arubanetworks.com
End-of-life Information	arubanetworks.com/support-services/end-of-life/
Security Incident Response Team	Site: arubanetworks.com/support-services/security-bulletins/ Email: aruba-sirt@hpe.com

The HPE Aruba Networking 503 Series Campus Access Points are high-performance, dual-radio wireless devices that can be deployed in either controllerbased (AOS) or controller-less (Instant) modes. The 503 Series Campus Access Points support the full 802.11ax (Wi-Fi 6) featureset with dual 2x2 MIMO radios and provide a wired network interface.

Package Contents

- 503 Series Campus Access Point
- Ceiling mount bracket for 7/16" and 15/16" flat (Spare: AP-220-MNT-C1 mount kit)

When ordered as an eco-friendly 10-pack, the package includes ten APs and mount brackets, and a bonus AP-CBL-SERU console cable.



Inform your supplier if there are any incorrect, missing, or damaged parts. If possible, retain the carton, including the original packing materials. Use these materials to repack and return the unit to the supplier if needed.

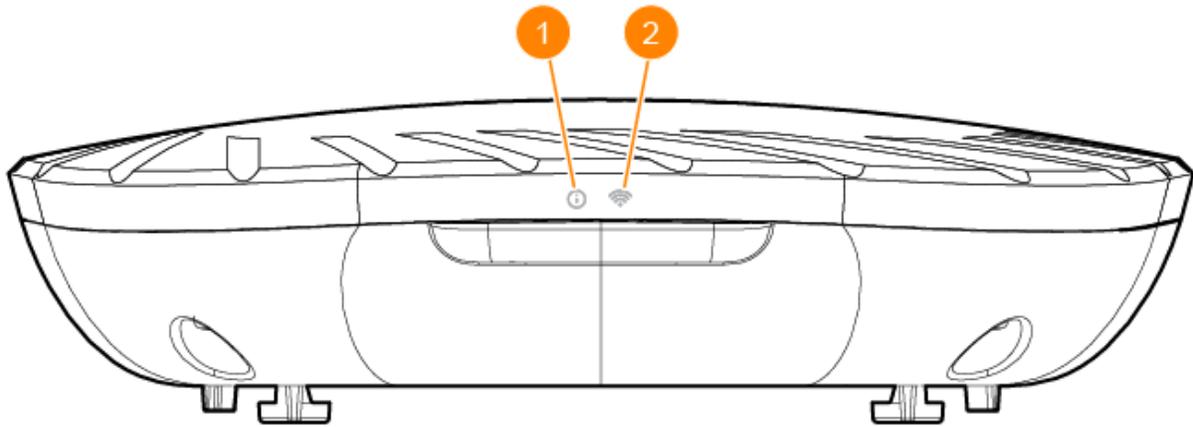
Access Point Overview

The following sections outline the hardware components of the 503 Series access points.

Figure 1 503 Series: Access Point Front View

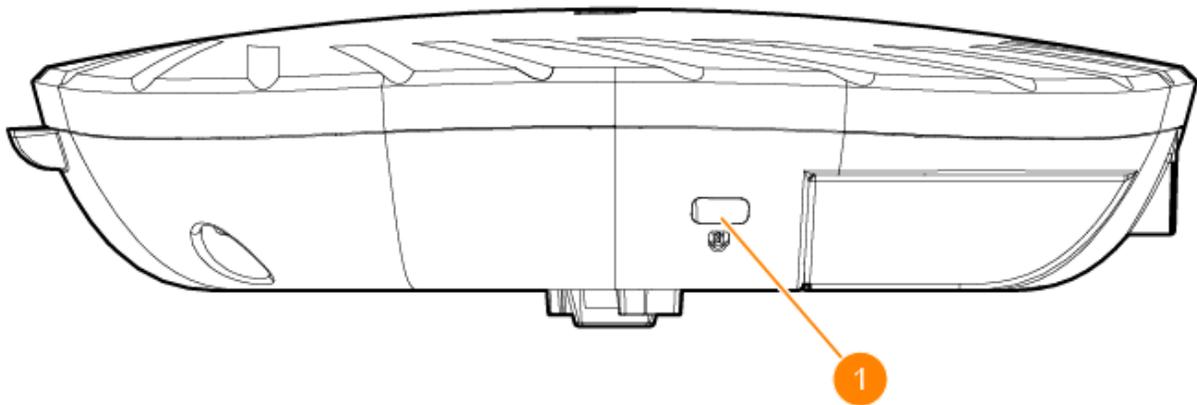


Figure 2 503 Series: Access Point Bottom View



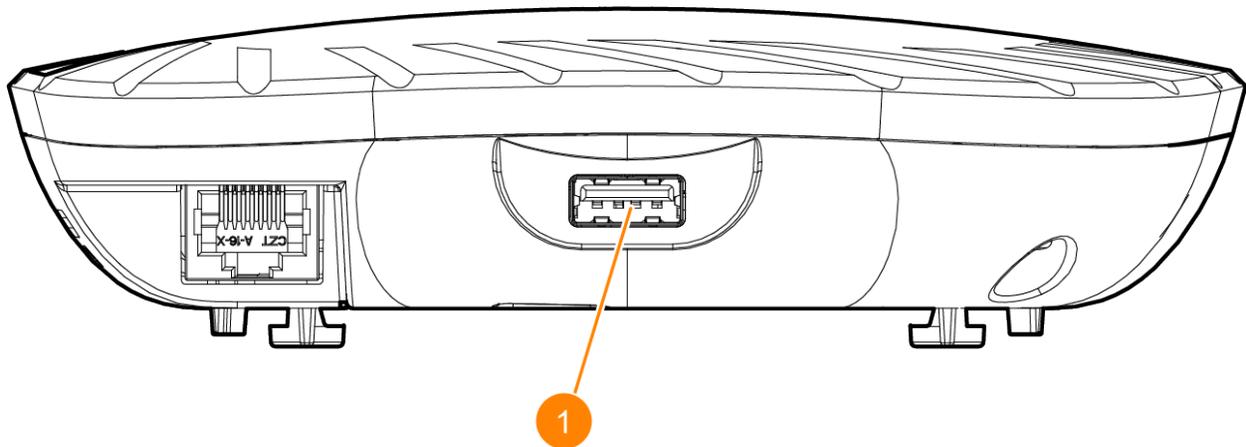
1	Radio status LED indicator
2	Wi-Fi status LED indicator

Figure 3 503 Series: Access Point Side View



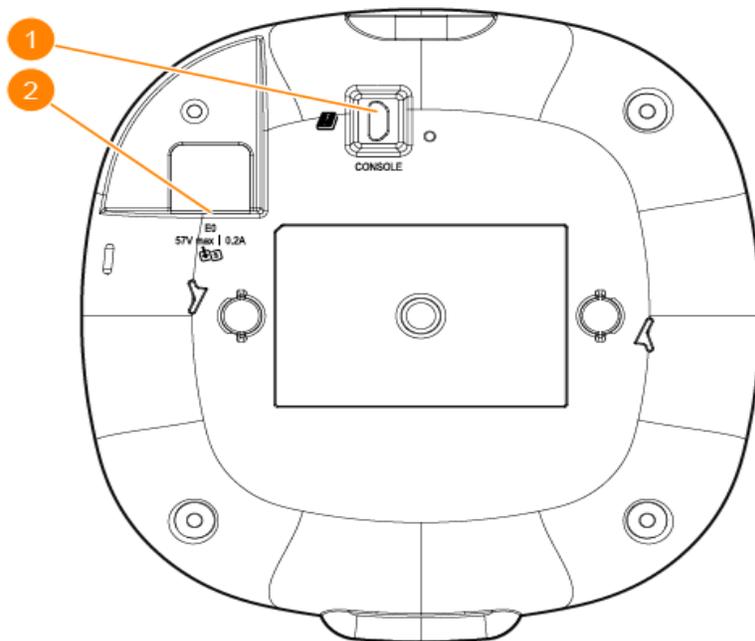
1	Kensington Lock slot
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Figure 4 503 Series: Access Point Top View



1	USB interface
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Figure 5 503 Series: Access Point Rear View



1	Console
2	E0 Ethernet port

LED indicators

The 503 Series access points have two LED indicators located at the bottom, front edge: one being system status and the other being radio status.

System Status LED indicators

Table 2: System Status LED indicators

Color/State	Meaning
Off	Device Powered off
Green- solid	Device ready, fully functional, no network restrictions
Green- blinking ¹	Device booting, not ready
Green- flashing off ²	Device ready, fully functional, either uplink negotiated in sub-optimal speed (<1Gbps)
Red	System error condition - Immediate attention required

Radio Status LED indicators

Table 3: Radio Status LED indicators

Color/State	Meaning
Off	Device powered off, or both radios disabled
Green- solid	Both radios enabled in access mode
Green- blinking ¹	One radio enabled in access mode, other disabled
Amber- solid	Both radios enabled in monitor mode
Amble- blinking ¹	One radio enabled in monitor mode, other disabled
Green/Amber- alternating ³	One radio in access mode, other in monitor mode

- 1. Blinking: one second on, one second off, 2 seconds cycle.
- 2. Flashing off: mostly on, fraction of a second off, 2 seconds cycle.
- 3. one second each color, 2 seconds cycle.

LED indicator Display Settings

The LED indicators have three operating modes that can be selected in the system management software:

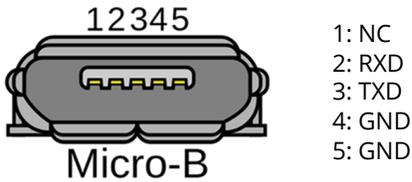
- Default mode: refer to [Table 2](#) and [Table 3](#).
- Off mode: all LED indicators are off
- Blink mode: all LED indicators blink green (synchronized)

To force the LED indicators into off mode or back to software defined mode, press the reset button for a short duration (less than 10 seconds).

Console Port

The console port is a Micro-B connector is located on the back of this device. Use the proprietary AP-CBL-SERU cable or AP-MOD-SERU module (sold separately) for direct management of this device when connected to a serial terminal or laptop. For pin-out details, refer to [Figure 6](#).

Figure 6 *Micro-B Port Pin-out*

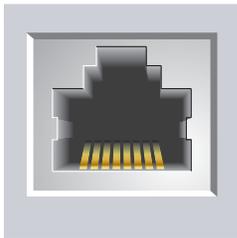


Ethernet Port

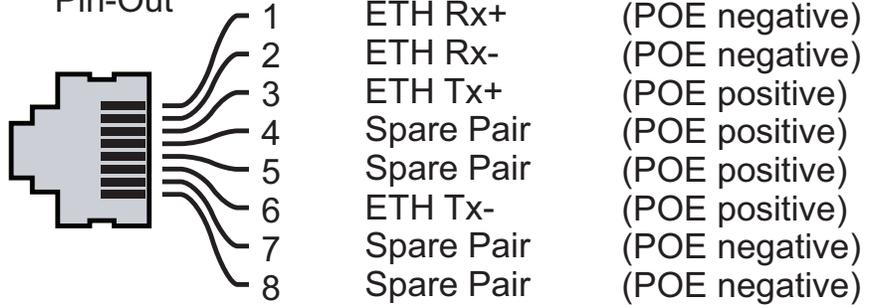
The AP-503 access points are equipped with one active Ethernet port (E0), with 10/100/1000 Base-T, auto-sensing MDI/MDX, which supports uplink connectivity when linked by an Ethernet cable. Refer to [Figure 7](#) for a detailed port pin-out.

Figure 7 *Ethernet Port Pin-Out*

1000Base-T Gigabit Ethernet Port



RJ-45 Female Pin-Out



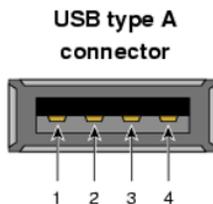
Kensington Lock Slot

The AP-503 is equipped with a Kensington lock slot for additional physical security.

USB Interface

The USB 2.0 interface located on the top of the is 503 Series compatible with selected cellular modems and other peripherals. When active, this port can supply up to 5W/1A to a connected device.

Figure 8 *503 Series USB*



Reset Button

The reset button located on the bottom of the device can be used to reset the access point to factory default settings or turn off/on the LED indicator display.

Use one of the following methods to reset the access point to factory default settings:

- To reset during normal operation:
 - Hold the reset button for more than 10 seconds while the access point is running.
 - Release the reset button.
- To reset during power up, hold the reset button while the access point is powering up.

The system status LED indicator will flash again within 15 seconds indicating that the reset is completed. The access point will now continue to boot with the factory default settings.

To toggle the LED indicator display between Off and Blinking, during the normal operation of the access point, shortly press and release the reset button using a small, narrow object, such as a paperclip.

Power

Ethernet port, E0, supports PoE-in, allowing the AP to draw power from an 802.3af PoE power source. When the AP is powered by the E0 port, the AP can be configured by management software to source PoE power.



Power sources are sold separately; see the 503 Series Ordering Guide for details.

Before You Begin

Refer to the sections below before beginning the installation process



CAUTION

FCC Statement: Improper termination of access points installed in the United States configured to non-US model controllers will be in violation of the FCC grant of equipment authorization. Any such willful or intentional violation may result in a requirement by the FCC for immediate termination of operation and may be subject to forfeiture (47 CFR 1.80).

Pre-Installation Checklist

Before installing your 503 Series access point, ensure that you have the following:

- A mount kit compatible with the AP and mount surface
- Cat5E or better UTP cable with network access

Optional items

- A compatible PoE midspan injector with power cord
- An AP-CBL-SERU console cable
- An AP-MOD-SERU console module

Also, make sure at least one of the following network services is supported:

- DNS server with an “A” record
- DHCP Server with vendor specific options



NOTE

HPE Aruba Networking, in compliance with governmental requirements, has designed the 503 Series access points so that only authorized network administrators can change configuration settings. For more information about AP configuration, refer to the [AP Software Quick Start Guide](#).

Identifying Specific Installation Locations

Use the access point placement map generated by HPE Aruba Networking 503 Series RF Plan software application to determine the proper installation location(s). Each location should be as close as possible to the center of the intended coverage area and should be free from obstructions or obvious sources of interference. These RF absorbers/reflectors/interference sources will impact RF propagation and should be accounted for during the planning phase and adjusted for in RF plan.

Identifying Known RF Absorbers/Reflectors/Interference Sources

Identifying known RF absorbers, reflectors, and interference sources while in the field during the installation phase is critical. Make sure that these sources are taken into consideration when you attach an access point to its fixed location.

RF absorbers include:

- Cement/concrete—Old concrete has high levels of water dissipation, which dries out the concrete, allowing for potential RF propagation. New concrete has high levels of water concentration in the concrete, blocking RF signals.
- Natural Items—Fish tanks, water fountains, ponds, and trees
- Brick

RF reflectors include:

- Metal Objects—Metal pans between floors, rebar, fire doors, air conditioning/heating ducts, mesh windows, blinds, chain link fences (depending on aperture size), refrigerators, racks, shelves, and filing cabinets.
- Do not place an access point between two air conditioning/heating ducts. Make sure that access points are placed below ducts to avoid RF disturbances.

RF interference sources include:

- Microwave ovens and other 2.4 or 5 GHz objects (such as cordless phones)
- Cordless headset such as those used in call centers or lunch rooms



Portable RF communications equipment should be used no closer than 30 cm (12 inches) to any part of the access point. Otherwise, degradation of the performance of this equipment could result.

Access Point Installation

The 503 Series access points ship with a ceiling mount bracket to attach to a 7/16" and 15/16" flat ceiling rail. Additional ceiling or wall mount kits are sold separately as accessories.



All HPE Aruba Networking access points should be installed by a professional. The installer is responsible for ensuring that grounding is available and meets applicable national and electrical codes. Failure to properly install this product may result in physical injury and/or damage to property.



Tous les points d'accès HPE Aruba Networking doivent impérativement être installés par un professionnel agréé. Ce dernier doit s'assurer que l'appareil est mis à la terre et que le circuit de mise à la terre est conforme aux codes électriques nationaux en vigueur. Le fait de ne pas installer correctement ce produit peut entraîner des blessures corporelles et / ou des dommages matériels.

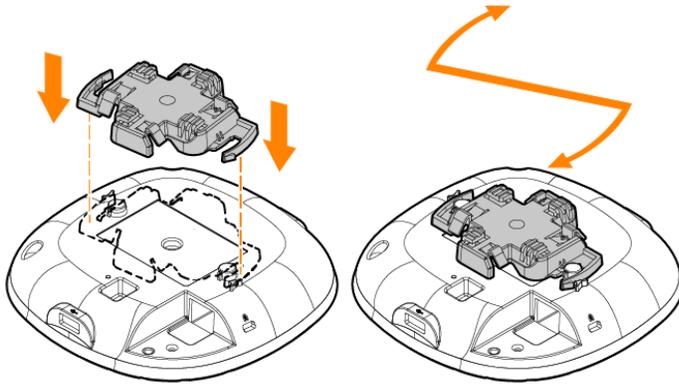


For indoor use only. The access point, AC adapter, and all connected cables are not to be installed outdoors. This stationary device is intended for stationary use in partly temperature controlled weather-protected environments (class 3.2 per ETSI 300 019).

Mounting Installation

1. Pull the necessary cables through a prepared hole in the ceiling tile near where the access point will be placed.
2. Place the mount bracket against the back of the access point with the mount bracket at an angle of approximately 30 degrees to the tabs.
3. Twist the mount bracket clockwise until it snaps into place in the tabs.

Figure 9 Attaching the ceiling mount bracket to the AP



4. Hold the access point next to the ceiling tile rail with the ceiling tile rail mounting slots at approximately a 30-degree angle to the ceiling tile rail. Make sure that any cable slack is above the ceiling tile.

5. Pushing toward the ceiling tile, rotate the access point clockwise until the device clicks into place on the ceiling tile rail.

Figure 10 Mounting the access point to a 7/16" rail

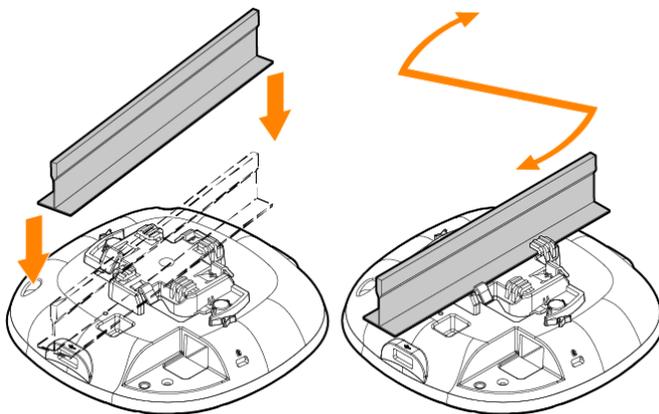
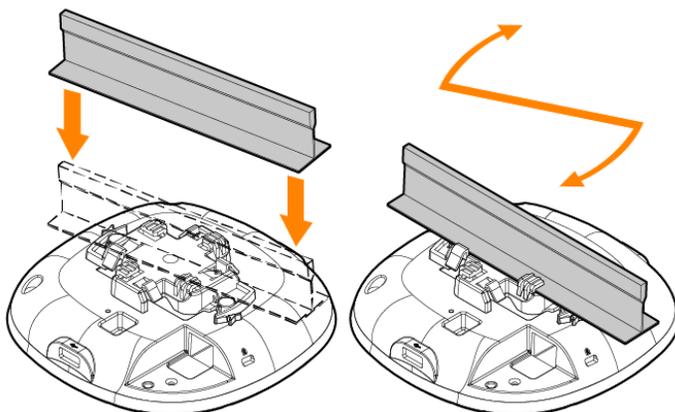


Figure 11 Mounting the access point to a 15/16" rail



Software

HPE Aruba Networking AP-503 Series Campus Access Points require ArubaOS 10.5.0.0 or HPE Aruba Networking Instant 8.11.0.0 or later. For instructions on choosing operating modes and initial software configuration, refer to the [AP Software Quick Start Guide](#).



HPE Aruba Networking access points are classified as radio transmission devices, and are subject to government regulations of the host country. The network administrator(s) is/are responsible for ensuring that configuration and operation of this equipment is in compliance with their country's regulations. For a complete list of approved channels in your country, refer to the HPE Aruba Networking Downloadable Regulatory Table at <https://www.arubanetworks.com/techdocs/DRT/Default.htm>.

Verifying Post-Installation Connectivity

The integrated LED indicators on the access point can be used to verify that the access point is receiving power and initializing successfully (see Table 1 and Table 2). Refer to the **AP Software Quick Start Guide** for further details on verifying post-installation network connectivity.

Electrical

Ethernet

- E0: 10/100/1000 Base-T auto-sensing Ethernet RJ-45 Interfaces

Power

- Power over Ethernet (IEEE 802.3af compliant)

Environmental

- Operating
 - Temperature: 0°C to +40°C (+32°F to +104°F)
 - Humidity: 5% to 95% non-condensing
- Storage
 - Temperature: -25°C to 55°C (-13°F to 131°F)
 - Relative Humidity: 10% to 100% non-condensing

Regulatory Information

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number (RMN). The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number RMN is not the marketing name or model number of the product.

The following regulatory model numbers apply to the 503 Series:

- AP-503 RMN: APIN0503

HPE ArubaNetworking provides a multi-language document that contains country-specific restrictions and additional safety and regulatory information for all HPE Aruba Networking access points. This document can be viewed or downloaded at www.arubanetworks.com.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Toute modification effectuée sur cet équipement sans l'autorisation expresse de la partie responsable de la conformité est susceptible d'annuler son droit d'utilisation.



Brazil

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Safety and Regulatory Compliance



RF Radiation Exposure Statement: This equipment complies with RF radiation exposure limits. This equipment should be installed and operated with a minimum distance of 7.87 inches (20cm) between the radiator and your body for 2.4 GHz, 5 GHz, and 6GHz operations. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Déclaration e la concernant l'exposition aux rayonnements à fréquence radioélectrique (FR): Cet appareil est conforme aux limites d'exposition aux rayonnements FR établies par la FCC. Il doit être installé et utilisé à une distance minimale de 20 cm (7,87 pouces) entre le radiateur et votre corps, qu'il opère sur la bande 2,4 GHz, 5 GHz, ou 6GHz. Cet émetteur ne doit pas être installé ou utilisé à proximité immédiate d'une autre antenne ni d'un autre transmetteur.



The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

Industry Canada

This Class B digital apparatus meets all of the requirements of the Canadian Interference-Causing Equipment Regulations.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device. When operated in 5.15 to 5.25 GHz frequency range, this device is restricted to indoor use to reduce the potential for harmful interference with co-channel Mobile Satellite Systems. Operation shall be limited to indoor use only

Déclaration d'Industrie Canada

Cet appareil numérique de classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Cet appareil contient des émetteurs / récepteurs exemptés de licence qui sont conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) ce périphérique ne doit pas provoquer d'interférences, et (2) ce périphérique doit accepter toute interférence, y compris les interférences susceptibles de provoquer un dysfonctionnement. En cas d'utilisation dans la plage de fréquences de 5,15 à 5,25 GHz, cet appareil doit uniquement être utilisé à l'intérieur afin de réduire les risques d'interférence avec les systèmes satellites mobiles partageant le même canal. Le fonctionnement doit être limité à une utilisation en intérieur uniquement.

EU & UK Regulatory Conformity

The Declaration of Conformity made under Radio Equipment Directive 2014/53/EU as well as the United Kingdom's Radio Equipment Regulations 2017/UK is available for viewing at:

www.hpe.com/eu/certificates. Select the document that corresponds to your device's model number as it is indicated on the product label.

Compliance is only assured if the HPE Aruba Networking approved accessories as listed in the ordering guide are used. To order accessories, visit: https://www.arubanetworks.com/assets/og/OG_503Series.pdf.

This device is limited for indoor use. Use in trains with metal-coated windows (or similar structures made of materials with comparable attenuation characteristic) and aircraft is permitted.



EU & UK Regulatory Contact:

HPE, Postfach 0001, 1122 Wien, Austria

México

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Нормативные требования Евразийского Экономического Союза

Russia



HPE Russia: ООО "Хьюлетт Паккард Энтерпрайз" Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон: +7 499 403 4248
Факс: +7 499 403 4677

'HPE Kazakhstan': ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 50

Kazakhstan

ЖШС "Хьюлетт Паккард Энтерпрайз" Ресей Федерациясы, 125171, Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677

ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы қ., Бостандық ауданы, Әл-Фараби даңғылы, 77/7, Телефон/факс: +7 (727) 355 35 50

Ukraine

Hereby, Hewlett Packard Enterprise Company declares that the radio equipment type [The Regulatory Model Number [RMN] for this device can be found in the [Regulatory Information](#) section of this document] is in compliance with Ukrainian Technical Regulation on Radio Equipment, approved by resolution of the CABINET OF MINISTERS OF UKRAINE dated May 24, 2017, No. 355. The full text of the UA declaration of conformity is available at the following internet address:

<https://certificates.ext.hpe.com/public/certificates.html>.

ХЬЮЛЕТТ ПАКАРД ЕНТЕРПРАЙЗ, 6280 АМЕРИКА ЦЕНТР Д-Р, САН-ХОСЕ, КАЛИФОРНИЯ 95002, США

Taiwan

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，指依電信法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。

1. 應避免影響附近雷達系統之操作。
2. 高增益指向性天線只得應用於固定式點對點系統
3. 電磁波暴露量 MPE 標準值 1 mW/cm^2 , 送測產品實測值為 $:0.0698 \text{ mW/cm}^2$

United States

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 manufacturer's 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 to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

Improper termination of access points installed in the United States configured to a non-US model controller is a violation of the FCC grant of equipment authorization. Any such willful or intentional violation may result in a requirement by the FCC for immediate termination of operation and may be subject to forfeiture (47 CFR 1.80).

The network administrator(s) is/are responsible for ensuring that this device operates in accordance with local/regional laws of the host domain.

FCC regulations restrict the operation of this device to indoor use only.

The operation of this device is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.

Operation in the 5.9725-7.125GHz band is prohibited for control or communication with unnamed aircraft systems.



CAUTION

Hong Kong



Philippines



Singapore

