

Cisco Aironet 340 Series Client Adapters and Access Points—In-Building Wireless Solutions

THE CISCO AIRONET 340 SERIES IS A COMPREHENSIVE FAMILY OF CLIENT ADAPTERS AND ACCESS POINTS THAT ENABLES ORGANIZATIONS TO INTEGRATE THE FREEDOM AND FLEXIBILITY OF WIRELESS LOCAL-AREA NETWORKING INTO THEIR INFORMATION SYSTEMS.

The Cisco Aironet 340 Series

- 11 Mbps Performance
- Security equivalent to wired networks
- Wireless freedom and flexibility
- IEEE 802.11b interoperability

The Cisco Aironet 340 series client adapters and access points are designed to meet the mobility, performance, security, interoperability/management, and reliability requirements of in-building wireless local-area networks (WLANs) within enterprise-wide information infrastructures or as free standing all-wireless networks. The Aironet 340 series products provide value-added features that are ideal for:

- IT professionals or business executives who want mobility within the enterprise, as an addition or alternative to wired networks
- Business owners or IT directors who need flexibility for frequent LAN wiring changes, either throughout the site or in selected areas
- Any company whose site is not conducive to LAN wiring because of building or budget limitations, such as older buildings, leased space, or temporary sites

The Cisco Aironet 340 series is a comprehensive family of client adapters¹ and access points² that enables organizations to integrate the freedom and flexibility of wireless local-area networking into their information systems.



1. Network interface cards that provides devices with wireless connectivity.
2. A wireless LAN transceiver that acts as a center point and bridges between wireless and wired networks.

The Aironet 340 series includes a complete line of client adapters, including PC Card, Personal Computer Interface (PCI), and Industry-Standard Architecture (ISA) cards for both notebook and desktop wireless connectivity. Aironet 340 series access points offer unprecedented management features, including a full-featured Web interface to simplify the navigation of the network, and a variety of antenna options to fit virtually any environment.

Based on direct sequence spread spectrum (DSSS)³ technology and operating in the 2.4 GHz band, the Aironet 340 series provides an Ethernet-like data rate of up to 11 megabits per second (Mbps). The high speed and throughput of the Aironet 340 series enables the wireless transfer of bandwidth-intensive data such as multimedia streams and large data files within the enterprise.

Understanding the security requirements of both small businesses and the enterprise, Cisco provides up to 128-bit Wired Equivalent Privacy (WEP), an optional security mechanism defined within the 802.11 standard that is designed to make the link integrity of the wireless medium equal to that of a cable. WEP is integrated with standard authentication features, providing a level of data security equal to traditional wired LANs.

For investment protection, the Aironet 340 series conforms to the IEEE 802.11b standard, ensuring interoperability with equipment available from a variety of vendors. The Aironet 340 series is fully compatible with most popular network operating systems and delivers both Simple Network Management Protocol (SNMP) and Web-based management features. The Aironet 340 series can be seamlessly integrated into wired Ethernet networks, as a complement or alternative to the best-of-class wired LAN products offered by Cisco Systems.

3. A type of spread spectrum radio transmission that spreads its signal continuously over a wide frequency band.

Figure 1 With the Aironet 340 series, network users with a variety of client devices can move freely throughout a facility while maintaining seamless, uninterrupted access to the LAN.

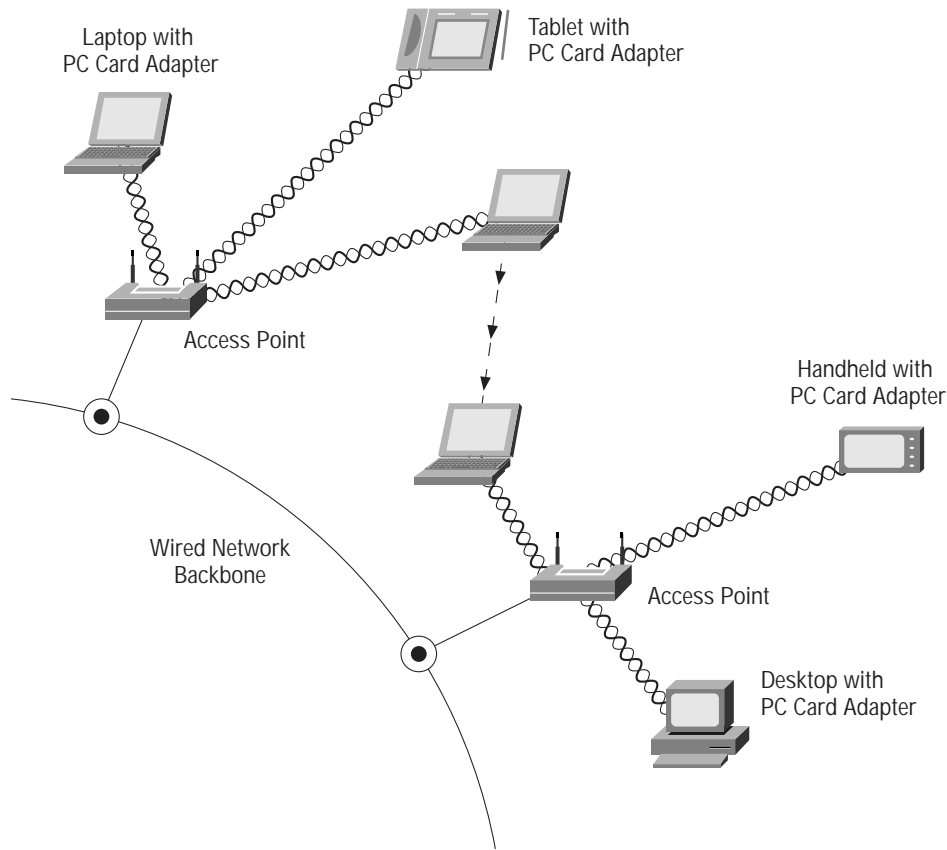


Table 1 Cisco Aironet 340 Series Specifications

Data Rates Supported	1, 2, 5.5 and 11 Mbps
Network Standard	IEEE 802.11b
Frequency Band	2400–2483.4 MHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Network Operating Systems Supported	Microsoft Windows 2000, 98, 95 NT, and CE
Modulation	DBPSK@ 1 Mbps DQPSK@ 2 Mbps CCK @ 5.5 and 11 Mbps
Operating Channels	11 channels (U.S., Canada, and Japan); 13 channels (ETSI)
Non-Overlapping Channels	Three
Roaming	IEEE 802.11b compliant with Cisco enhanced roaming features
Warranty	One Year Plus: Access Points Limited Lifetime: Client Adapters

Aironet 340 Series Client Adapters

- High speed
- Excellent price/performance
- Full-featured utilities and robust management
- Secure transmission
- Long range⁴
- Fully compliant with 802.11b standard
- Field-proven reliability

Cisco Aironet 340 series client adapters couple the mobility, freedom, and flexibility of wireless local-area networking with the bandwidth required by enterprise-wide information systems. With wireless-enabled client PCs, users with laptop, notebook, and hand-held devices can move freely within a campus environment while maintaining uninterrupted access to centrally located data. With wireless PCI and ISA adapters, desktop PCs can be quickly added to a LAN without expensive, time-consuming, and often impractical cable runs and drops. With wireless, as an organization grows, reorganizes, or even changes location, clients can be quickly relocated without a loss of productivity.

4. A linear measure of the distance that a transmitter can send a signal.

Now with 11 Mbps of bandwidth,⁵ the benefits of wireless do not come at the expense of the data rate and throughput required by data-intensive applications. With the Cisco client adapters, users don't sacrifice anything; they experience the network performance they have come to expect—without the constraints and inflexibility of a wired connection.

All Aironet 340 series adapters feature antennas that provide the range and reliability required for data transmission and reception in larger indoor facilities. The internal dual diversity antennas⁶ of the PC adapter automatically toggle to select the antenna receiving the strongest signal as the user moves within a facility. The fixed, integrated antenna is rugged enough to withstand the rigors

of mobile computing and compact enough to stay out of the way, extending only an inch outside the PC Card slot. The external antenna, standard with the PCI and ISA adapters, is optimized for transmission from a stationary system and fits neatly behind the PC.

Up to 128-bit wired equivalent privacy (WEP) encryption security is available to provide data security that is comparable to traditional wired LANs. Cisco includes a complete set of device drivers to make installation trouble-free in a full range of systems. Easy-to-use site survey tools produce graphical information, including signal strength. To further facilitate installation, Cisco provides a suite of integrated utilities for Windows-based configuration, management, and diagnostics.

5. Specifies the amount of the frequency spectrum that is usable for data transfer; it identifies the maximum data rate that a signal can attain on the medium without encountering significant loss of power.

6. An intelligent system of two antennas that continually senses incoming radio signals and automatically selects the antenna best positioned to receive it.

Figure 2 Each Aironet 340 series client adapter comes complete with a powerful, yet intuitive, Windows-based configuration, management, and diagnostics utility.

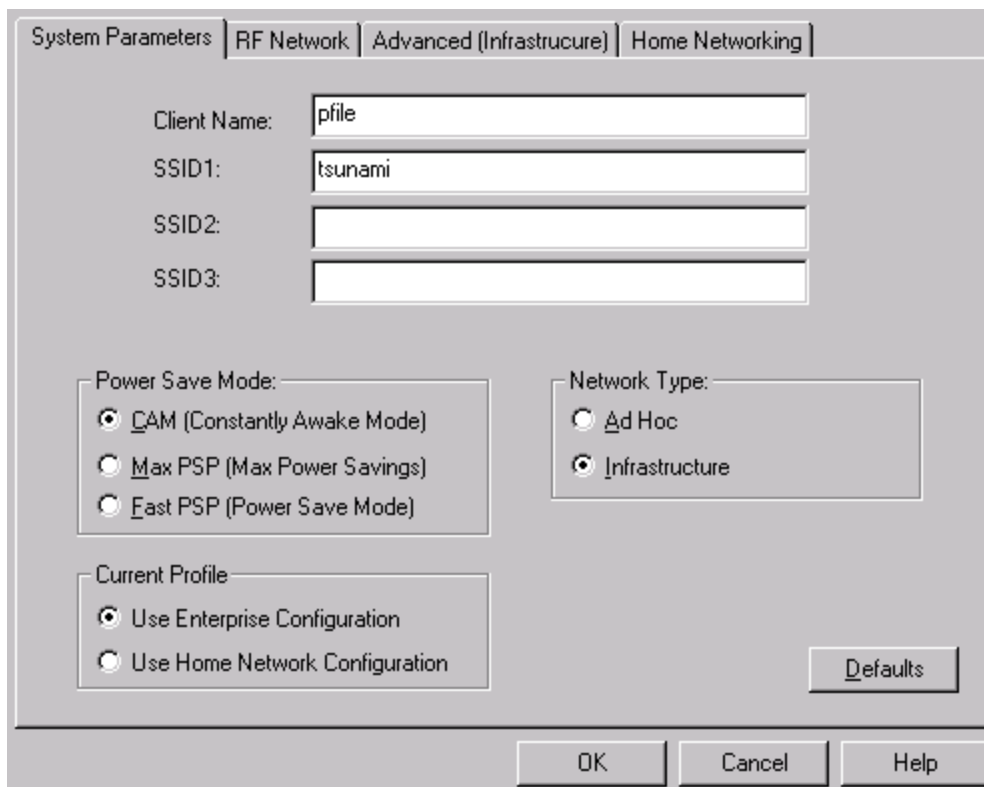


Table 2 Cisco Aironet 340 Series Client Adapters Product Features

Features	AIR-PCM340	AIR-PCI340	AIR-ISA340
Network Architecture Types	Supports peer-to-peer networking and communication to wired networks via access points	Supports peer-to-peer networking and communication to wired networks via access points	Supports peer-to-peer networking and communication to wired networks via access points
Range at 1 Mbps¹ (typical)	1500 ft. (460m) open environment; 300 ft. (90m) office	1500 ft. (460m) open environment; 300 ft. (90m) office	1500 ft. (460m) open environment; 300 ft. (90m) office
Range at 11 Mbps¹ (typical)	400 ft. (120m) open environment; 100 ft. (30m) office	400 ft. (120m) open environment; 100 ft. (30m) office	400 ft. (120m) open environment; 100 ft. (30m) office
Encryption	AIR-PCM340: No WEP option AIR-PCM341: 40-bit WEP option AIR-PCM342: 128-bit WEP option	AIR-PCI340: No WEP option AIR-PCI341: 40-bit WEP option AIR-PCI342: 128-bit WEP option	AIR-ISA340: No WEP option AIR-ISA341: 40-bit WEP option AIR-ISA342: 128-bit WEP option
Antenna	Integrated internal antenna with diversity support	External 2.2 dBi dipole antenna with RP-TNC connection	External 2.2 dBi dipole antenna with RP-TNC connection
Device Drivers Available	NDIS2, NDIS3, NDIS4, NDIS5 ODI, and Packet	NDIS2, NDIS3, NDIS4, NDIS5 ODI, and Packet	NDIS2, NDIS3, NDIS4, NDIS5 ODI, and Packet
System Interface	PC Card Type II slot	32-bit PCI slot	16-bit ISA slot
LED Indicators	Link status and link activity	Link status and link activity	Link status and link activity
Receive Sensitivity	-90 dBm @ 1 Mbps -88 dBm @ 2 Mbps -87 dBm @ 5.5 Mbps -83 dBm @ 11 Mbps	-90 dBm @ 1 Mbps -88 dBm @ 2 Mbps -87 dBm @ 5.5 Mbps -83 dBm @ 11 Mbps	-90 dBm @ 1 Mbps -88 dBm @ 2 Mbps -87 dBm @ 5.5 Mbps -83 dBm @ 11 Mbps
Max Output Power	30 mW (U. S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)	30 mW (U. S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)	30 mW (U. S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)
Power Consumption	Transmit: 350 mA Receive: 250 mA Sleep: under 10 mA	Transmit: 450 mA Receive: 350 mA Sleep: under 110 mA	Transmit: 450 mA Receive: 350 mA Sleep: under 110 mA
Certifications	FCC Class B, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.	FCC Class B, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; call for other information outside the U.S.	FCC Class B, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.
Operating Temperature	32° to 158°F (0° to 70°C)	32° to 131°F (0° to 55°C)	32° to 131°F (0° to 55°C)
Humidity (noncondensing)	10 to 90%	10 to 90%	10 to 90%
Dimensions	2.13 x 4.37 x 0.1 in. (5.4 x 11.1 x .5 cm)	6.6 x 3.875 x 0.5 in. (16.76 x 9.8 x 1.27 cm)	6.3 x 3.2 x 0.5 in. (16.1 x 8.1 x 1.3 cm)
Weight	1.6 oz. (45 g)	4.4 oz. (125 g)	4.4 oz. (125 g)

1. Ranges vary with specific customer applications

Aironet 340 Series Access Points

- Manageability
- Easy integration and configuration
- Multiple configuration options
- Fully compliant with 802.11b standard

Cisco Aironet 340 series access points perform functions similar to a hub in a wired network; in addition, they add the vital, price/performance benefits of security, management features, and mobility services. For example, the innovative roaming functionality provided by Aironet access points enable users equipped with wireless client adapters to freely move throughout a facility while maintaining seamless, uninterrupted access to the network. The Aironet 340 family

of access points features easy integration to a wired network backbone, flexible configuration, management capabilities, and a wide range of product configurations.

The Aironet 340 series access points integrate easily into 10- and 100-Mbps Ethernet networks via a single autosensing RJ-45 port. The access point acts as a bridge, forwarding at media speed between the Ethernet CSMA/CD protocol and the wireless CSMA/CA protocol, seamlessly integrating wireless functionality into a wired infrastructure. The Aironet 340 series access points may be configured locally via serial port or remotely over the LAN; they provide the option of a Web browser or console management interface.

The Aironet 340 management system offers IS professionals complete control over access-point settings and operational information. Setting security levels, addresses, transmission channels, data rates, and other options can be done quickly through either management interface. The management system captures vital operational data that may be viewed as an event log within the management system or exported to a Management Information Base (MIB) for analysis by an SNMP-compliant system.

Every in-building wireless deployment presents different transmission considerations: varying building sizes, construction materials, and interior divisions impact the deployment of a wireless LAN. To ensure maximum network coverage efficiency in a variety of information systems and facilities, Cisco offers access points with three distinct antenna configurations. For small to medium-sized businesses and similar organizations, Cisco provides an

access point with a single, integrated, external antenna that is designed to combine needed features with more stringent budget requirements. For larger organizations, Cisco provides access points with integrated, dual-diversity, external antennas that address the multipath⁷ problems associated with larger facilities. Finally, for the most challenging installations, Cisco provides access points with dual reverse polarity⁸ TNC connectors. These connectors allow the planner to select from more than 20 different omnidirectional, patch, yagi, and parabolic antennas to engineer the coverage needed within almost any facility. To meet the security needs of organizations around the world, access points are available with up to WEP-128 encryption.

7. The echoes created as a radio signal bounces off physical objects.
 8. Connector types unique to Aironet radios and antennas. Part 15.203 of the FCC rules covering spread-spectrum devices limits the types of antennas that may be used with transmission equipment. In compliance with this rule, Aironet radios and antennas are equipped with unique connectors to prevent attachment of nonapproved antennas to radios.

Figure 3 The Cisco Aironet access point management system gives IS professionals complete control over settings and operational information.

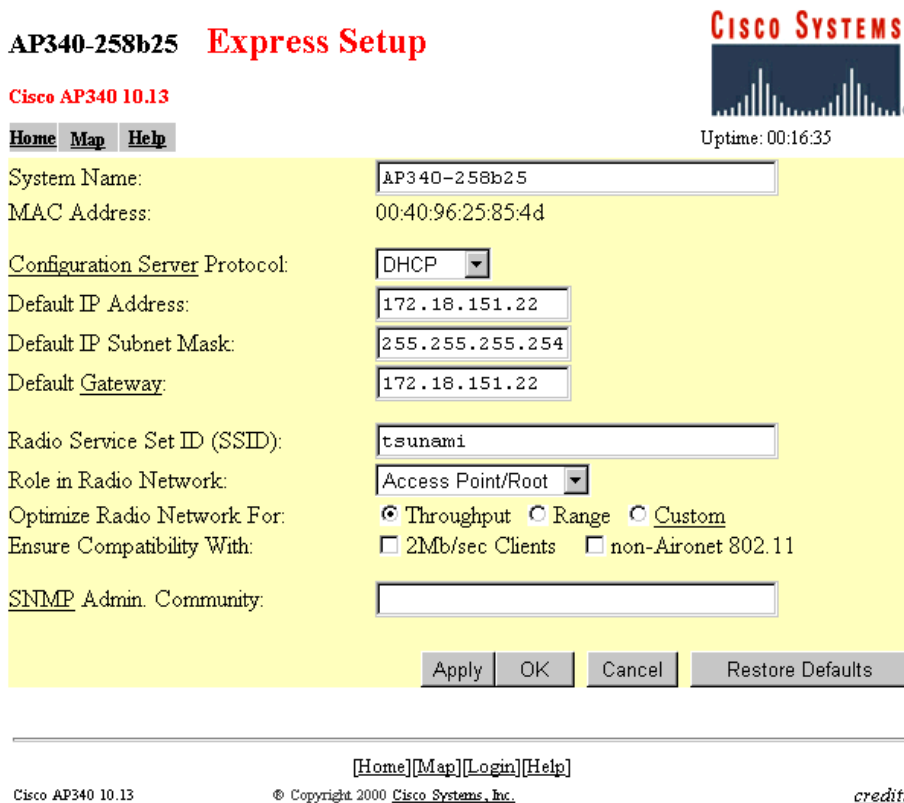
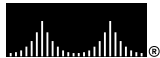


Table 3 Cisco Aironet 340 Series Access Point Product Features

Feature	AIR-AP341S1C	AIR-AP342E2C	AIR-AP341E2C	AIR-AP342E2R	AIR-AP341E2R
Network Protocols Supported	Complies with IEEE 802.3	Complies with IEEE 802.3	Complies with IEEE 802.3	Complies with IEEE 802.3	Complies with IEEE 802.3
Range at 1 Mbps (typical)	1300 ft. (400m) open environment; 250 ft (77m) office	1300 ft. (400m) open environment; 250 ft (77m) office	1300 ft. (400m) open environment; 250 ft (77m) office	1500 ft. (460m) open environment; 300 ft (90m) office	1500 ft. (460m) open environment; 300 ft (90m) office
Range at 11 Mbps (typical)	300 ft. (90m) open environment; 80 ft (25m) office	300 ft. (90m) open environment; 80 ft (25m) office	300 ft. (90m) open environment; 80 ft (25m) office	400 ft. (120m) open environment; 100 ft (30m) office	400 ft. (120m) open environment; 100 ft (30m) office
Encryption	40-bit WEP	128-bit WEP	40-bit WEP	128-bit WEP	40-bit WEP
Maximum Clients	10	2048	2048	2048	2048
Antenna	Integrated single 2.2 dBi dipole (no antenna diversity)	Integrated (nonremovable) dual 2.2 dBi dipole with diversity support	Integrated (nonremovable) dual 2.2 dBi dipole with diversity support	Optional (none supplied with unit)	Optional (none supplied with unit)
Optional Antenna Connector	None	None	None	Dual RP-TNC connectors with diversity support	Dual RP-TNC connectors with diversity support
LED Indicators	Status, network activity and RF Activity	Status, network activity and RF Activity	Status, network activity and RF Activity	Status, network activity and RF Activity	Status, network activity and RF Activity
Local Configuration	Direct console port (serial EIA-232 DB-9 female)	Direct console port (serial EIA-232 DB-9 female)	Direct console port (serial EIA-232 DB-9 female)	Direct console port (serial EIA-232 DB-9 female)	Direct console port (serial EIA-232 DB-9 female)
Remote Configuration	HTTP, Telnet, FTP, or SNMP	HTTP, Telnet, FTP, or SNMP	HTTP, Telnet, FTP, or SNMP	HTTP, Telnet, FTP, or SNMP	HTTP, Telnet, FTP, or SNMP
Automatic Configuration	BOOTP and DHCP	BOOTP and DHCP	BOOTP and DHCP	BOOTP and DHCP	BOOTP and DHCP
Receive Sensitivity	-90dBm @ 1 Mbps -88dBm @ 2 Mbps -87dBm @ 5.5 Mbps -83dBm @ 11 Mbps	-90dBm @ 1 Mbps -88dBm @ 2 Mbps -87dBm @ 5.5 Mbps -83dBm @ 11 Mbps	-90dBm @ 1 Mbps -88dBm @ 2 Mbps -87dBm @ 5.5 Mbps -83dBm @ 11 Mbps	-90dBm @ 1 Mbps -88dBm @ 2 Mbps -87dBm @ 5.5 Mbps -83dBm @ 11 Mbps	-90dBm @ 1 Mbps -88dBm @ 2 Mbps -87dBm @ 5.5 Mbps -83dBm @ 11 Mbps
Output Power	30 mW (U.S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)	30 mW (U.S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)	30 mW (U.S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)	30 mW (U.S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)	30 mW (U.S., Canada, ETSI) 4.5 mW/MHz (EIRP, Japan)
Power Consumption	5V 5% @ 800 mA	5V 5% @ 800 mA	5V 5% @ 800 mA	5V 5% @ 800 mA	5V 5% @ 800 mA
Power Requirements	110–120V/220–240V	110–120V	110–120V/220–240V	110–120V	110–120V/220–240V
SNMP Compliance	MIB I, MIB II	MIB 1, MIB II	MIB I, MIB II	MIB I, MIB II	MIB I, MIB II
Certifications	FCC Class A, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.	FCC Class A, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.	FCC Class A, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.	FCC Class A, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.	FCC Class A, FCC Part 15.247, Canada ICES Class B, CE, UL, CSA; Call for other information outside the U.S.
Operating Temperature	32 to 131 F (0 to 55 C)	32 to 131 F (0 to 55 C)	32 to 131 F (0 to 55 C)	32 to 131 F (0 to 55 C)	32 to 131 F (0 to 55 C)
Humidity (non-condensing)	10 to 90%	10 to 90%	10 to 90%	10 to 90%	10 to 90%
Dimensions	6.3 x 4.72 x 1.45 in. (16 x 12 x 3.68 cm)	6.3 x 4.72 x 1.45 in. (16 x 12 x 3.68 cm)	6.3 x 4.72 x 1.45 in. (16 x 12 x 3.68 cm)	6.3 x 4.72 x 1.45 in. (16 x 12 x 3.68 cm)	6.3 x 4.72 x 1.45 in. (16 x 12 x 3.68 cm)
Weight	12.3 oz. (350g), excluding power supply	12.3 oz. (350g), excluding power supply	12.3 oz. (350g), excluding power supply	12.3 oz. (350g), excluding power supply	12.3 oz. (350g), excluding power supply

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