Cisco Aironet 1550 Series Outdoor Access Point

Next-Generation Outdoor Wireless

- Cisco® CleanAir technology provides integrated spectrum intelligence for a self-configuring and self-healing network
- ClientLink improves reliability and coverage for legacy clients
- Improved 802.11n range and performance with 2x3 multiple-input multiple-output (MIMO) technology
- 300 Mbps data rates per radio
- Multiple-radio support (802.11a/n, 802.11b/g/n)
- DOCSIS 3.0/EuroDOCSIS 3.0, 8x4 hybrid fiber-coaxial (HFC) cable modem option
- Improved 802.11n radio sensitivity and range performance with three antenna MIMO and two spatial streams
- Multiple uplink options (Gigabit Ethernet-10/100/1000 BaseT, Fiber SFP interface-cable (certain models)
- Internal battery backup power
- NEMA Type 4X certified enclosure

Cisco Aironet 1552E

- External antenna model

Cisco Aironet 1552C

- Cable modem model

Cisco Aironet 1552H

- Hazardous location model

Cisco Aironet 1552I

- Integrated antenna model

High-Performance Outdoor Wireless

The Cisco Aironet 1550 Series Outdoor Access Point with CleanAir technology is the industry's first enterprise and carrier-grade 802.11n access point to create a self-healing, and self-optimizing wireless network that mitigates the impact of wireless interference. It offers a flexible, secure, and scalable mesh network for high-performance mobility across large metropolitan-sized areas, enterprise campuses, manufacturing yards, and mining pits. The Cisco Aironet 1550 Series supports multiple-device and multiple-network application delivery such as real-time seamless mobility, video surveillance, 3rd Generation (3G) and 4G data offload, and public and private Wi-Fi access. Designed to meet customer needs in a broad range of industries, the Cisco Aironet 1550 Series offers the following benefits:

- Flexible deployment options: Access or mesh network, extension of an Ethernet network, and Ethernet, fiber, wireless, or cable backhaul.

- Service provider support: Wi-Fi for next-generation mobile data offload and personalized mobile services.

- Cisco CleanAir technology: Integrated spectrum intelligence to detect, classify, and mitigate RF interference from unauthorized wireless bridges or malicious devices.

- High-bandwidth video surveillance over Wi-Fi without the high cost of installing cables over long distances.

- High-performance, multipurpose network with low CapEx and OpEx.

- Integrated wired and wireless: The Cisco Borderless Networks Architecture provides cost savings with end-to-end network access solutions that include wireless, switching, routing, and security.

Flexible, High-Performance Mesh

The Cisco Aironet 1550 Series Outdoor Access Point offers a flexible, secure, and scalable mesh platform that is part of the Cisco Unified Wireless Network and the Cisco Service Provider Wi-Fi solution. It offers high performance mobility across large metropolitan-sized areas and enterprise campuses, manufacturing yards, and mining pits. Carrier-grade design allows service providers to take advantage of Wi-Fi for next-generation mobile data offloads. The Cisco Aironet 1550 Series provides high-performance device access through improved radio sensitivity and range with 802.11a/b/g/n multiple-input multiple-output (MIMO) technology, with two spatial streams. Multiple uplink and power options are available. The 802.3af-compliant, Power-over-Ethernet (PoE) interface makes it easy to connect IP devices, such as IP video cameras. NEMA Type 4X enclosures help ensure a robust system that can withstand demanding environments. To help ensure uptime for mission-critical applications even in the event that electrical power becomes unavailable, the Cisco Aironet 1550 Series offers an internal battery for backup power.

Cisco CleanAir Technology

The Cisco Aironet 1550 Series with Cisco CleanAir technology provides the highest-performance 802.11n connectivity for mission-critical outdoor networks by detecting interference from unauthorized devices, as well as common outdoor interference sources such as WiMAX networks and wireless bridging products. The 1550 Series uses chip-level intelligence to create a spectrum-aware, self-healing, and self-optimizing wireless network that mitigates the impact of wireless interference. CleanAir is a systemwide feature of the Cisco Unified Wireless Network that improves wireless network quality by detecting RF interference that other systems can't recognize, identifying the source, locating it, and then making automatic adjustments to optimize wireless coverage.

RF Excellence

Building on the Cisco Aironet heritage of RF excellence, the Cisco Aironet 1550 Series delivers industry-leading performance for secure and reliable wireless connections. Industrial-grade parts, enterprise-class silicon-level intelligence, and optimized radios deliver a robust mobility experience. The Cisco Aironet 1550 Series provides a set of tools that deliver the robust, scalable wireless foundation required to realize the true potential of outdoor wireless mobility:

- Cisco ClientLink technology to raise uplink and downlink performance of and coverage to existing 802.11a/g clients
- Radio resource management (RRM) for automated channel selection and power setting management of access points
- Advanced capabilities to select data rates, adjust power, and manage quality of service (QoS) for access points

Centrally Managed Mesh Network

Central management and troubleshooting of the Cisco outdoor wireless access points prevent costly maintenance service calls to outdoor locations, The Cisco Wireless Control System (WCS) works in conjunction with the Cisco Aironet Access Points and Cisco Wireless LAN Controllers to configure and manage the wireless networks. With Cisco WCS, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, security monitoring, and wireless LAN systems management. Cisco CleanAir technology is integrated into the WCS to provide real-time information on your outdoor network. Wireless network security is also a part of a unified wired and wireless solution. Cisco wireless network security offers the highest level of network security, which helps ensure that data remains private and secure and that the network is protected from unauthorized access.

Cisco Aironet 1552E External Antenna Access Point

The Cisco Aironet 1552E Outdoor Access Point is the standard model, dual-radio system with dual-band radios that are compliant with IEEE 802.11a/n (5-GHz) and 802.11b/g/n standards (2.4 GHz). The 1552E has three external antenna connections for three dual-band antennas. It has Ethernet and fiber Small Form-Factor Pluggable (SFP) backhaul options, along with the option of a battery backup. This model also has a PoE-out port and can power a video surveillance camera. A highly flexible model, the Cisco Aironet 1552E is well equipped for municipal and campus deployments, video surveillance applications, mining environments, and data offload.

Cisco Aironet 1552C Cable Modem Access Point

Where service providers have already invested in a broadband cable network, the Cisco next-generation outdoor wireless mesh can seamlessly extend network connectivity with the Cisco Aironet 1552C access point by connecting to its integrated cable modem interface. The Cisco Aironet 1552C Outdoor Mesh Access Point is a dual-radio system with DOCSIS 3.0/EuroDOCSIS 3.0 (8x4 HFC) cable modem for power and backhaul. It has dual-band radios that are compliant with IEEE 802.11a/n (5 GHz) and 802.11b/g/n standards (2.4 GHz). The 1552C has an integrated, three-element, dual-band antenna and easily fits within the 30 cm height restriction for service providers. This model is perfect for 3G data offload applications and public Wi-Fi.

Cisco Aironet 1552H Hazardous Location Access Point

This access point is designed for hazardous environments like oil and gas refineries, chemical plants, mining pits, and manufacturing factories. The Cisco Aironet 1552H Outdoor Access Point is Class 1, Div 2/Zone 2 hazardous location certified. It has similar options as the 1552E, with the exception of the battery backup.

Cisco Aironet 1552I Integrated Antenna Access Point

The Cisco Aironet 1552I Outdoor Access Point is a low-profile, lighter weight model in the 1550 Series. The smaller size and sleeker look helps it blend in with the surrounding environment. The smaller power supply also makes it a more energy-efficient product. The 1552I does not have PoE out or a fiber SFP port.

External and Integrated Antennas

The Cisco Aironet 1552E and 1552H Outdoor Access Points, use three Cisco AIR-ANT2547V-N Antennas. These dual band, omni-directional, stick antennas have a gain of 4 dBi (2.4GHz) and 7 dBi (5GHz).

For the Cisco Aironet 1552C and 1552I Outdoor Access Points include a dual band, integrated antenna radome. This antenna has 3 omni-directional antenna elements that have antenna gains of 2 dBi (2.4GHz) and 4 dBi (5GHz). More information, including antenna patterns, can be found in the Cisco Aironet Antennas and Accessories Guide. http://www.cisco.com/en/US/products/hw/wireless/ps469/index.html.

Product Specifications

Table 1 lists specifications for the Cisco Aironet 1550 Series.

Table 1. Cisco Aironet 1550 Series Product Specifications

Item	Specification
Part numbers	**Cisco Aironet 1552E Access Point** • AIR-CAP1552E-A-K9 • AIR-CAP1552E-C-K9 • AIR-CAP1552E-E-K9 • AIR-CAP1552E-M-K9 • AIR-CAP1552E-N-K9 • AIR-CAP1552E-K-K9 • AIR-CAP1552E-R-K9 • AIR-CAP1552E-S-K9 • AIR-CAP1552E-T-K9 **Cisco Aironet 1552C Access Point with DOCSIS 3.0 Cable Modem** • AIR-CAP1552C-A-K9 • AIR-CAP1552C-E-K9 • AIR-CAP1552C-N-K9 **Cisco Aironet 1552H Hazardous Location Access Point** • AIR-CAP1552H-A-K9 • AIR-CAP1552H-C-K9 • AIR-CAP1552H-E-K9 • AIR-CAP1552H-M-K9 • AIR-CAP1552H-N-K9 • AIR-CAP1552H-S-K9 **Cisco Aironet 1552I Integrated Antenna Access Point** • AIR-CAP1552I-A-K9 • AIR-CAP1552I-E-K9 • AIR-CAP1552I-K-K9 • AIR-CAP1552I-Q-K9 **Cisco SMARTnet® Services for the Cisco Aironet 1550 Series Access Points** • CON-SNT-CAP155Ex - SMARTnet 8x5xNBD 1552E Access Point • CON-SNT-CAP155Cx - SMARTnet 8x5xNBD 1552C Access Point with Cable Modem • CON-SNT-CAP155Hx - SMARTnet 8x5xNBD 1552H Hazardous Location Access Point • CON-SNT-CAP155Ix - SMARTnet 8x5xNBD 1552I Integrated Antenna Access Point Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.
802.11n Version 2.0 (and Related) Capabilities	• 2x3 multiple-input multiple-output (MIMO) with two spatial streams • Legacy beamforming • 20- and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) • Cyclic shift diversity (CSD) support
DOCSIS 3.0 Capabilities	DOCSIS 3.0 8x4 cable modem provides: • Eight (8) bonded channels with total throughput in excess of 300 Mbps • Designed to meet DOCSIS 3.0 specifications as well as backward compability with existing DOCSIS 2.0, 1.1 and 1.0 networks • Enhanced packet processing technology to maximize performance • Downstream data rates in excess of 320 Mbps • Upstream data rates up to 120 Mbps Channel-bonded cable modems must be used in conjunction with a cable modem termination system (CMTS) that supports channel bonding per the DOCSIS 3.0 specifications. When used with a non-channel-bonded CMTS, channel- bonded cable modems function as conventional DOCSIS 2.0 cable modems.
Data Rates Supported	**802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps**
	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
	802.11n data rates (2.4 GHz and 5 GHz):

Item	Specification				
	MCS Index[1]	GI[2] = 800ns		GI = 400ns	
		20-MHz Rate (Mbps)	40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)
	0	6.5	13.5	7.2	15
	1	13	27	14.4	30
	2	19.5	40.5	21.7	45
	3	26	54	28.9	60
	4	39	81	43.3	90
	5	52	108	57.8	120
	6	58.5	121.5	65	135
	7	65	135	72.2	150
	8	13	27	14.4	30
	9	26	54	28.9	60
	10	39	81	43.3	90
	11	52	108	57.8	120
	12	78	162	86.7	180
	13	104	216	115.6	240
	14	117	243	130	270
	15	130	270	144.4	300
Frequency Band and 20-MHz Operating Channels	-A Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.725 to 5.850 GHz; 5 channels -C Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.725 to 5.850 GHz; 5 channels -E Domain: • 2.401 to 2.4835 GHz; 13 channels • 5.470 to 5.725 GHz; 8 channels -K Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.250 to 5.825 GHz; 14 channels -M Domain • 2.400 to 2.4835 GHz; 13 channels • 5.470 to 5.850 GHz; 12 channels -N Domain: • 2.400 to 2.4835 GHz; 11 channels • 5.725 to 5.850 GHz; 5 channels -Q Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.470 to 5.725 GHz; 11 channels -R Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.250 to 5.725 GHz; 11 channels -S Domain: • 2.400 to 2.4835 GHz; 13 channels • 5.725 to 5.850 GHz; 5 channels -T Domain: • 2.400 to 2.4835 GHz; 11 channels 5.470 to 5.850 GHz; 16 channels				
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.					

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[1] MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
[2] GI: A guard interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Item	Specification		
Maximum Number of Nonoverlapping Channels	**2.4 GHz** • 802.11b/g: ◦ 20 MHz: 3 • 802.11n: ◦ 20 MHz: 3		**5 GHz** • 802.11a: ◦ 20 MHz: 16 • 802.11n: ◦ 20 MHz: 16 ◦ 40 MHz: 8
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.			
Receive Sensitivity	**802.11b (Complementary Code Keying [CCK])** -101 dBm @ 1 Mb/s -98 dBm @ 2 Mb/s -92 dBm @ 5.5 Mb/s -89 dBm @ 11 Mb/s	**802.11g (non HT20)** -94 dBm @ 6 Mb/s -93 dBm @ 9 Mb/s -92 dBm @ 12 Mb/s -90 dBm @ 18 Mb/s -86 dBm @ 24 Mb/s -84 dBm @ 36 Mb/s -79 dBm @ 48 Mb/s -78 dBm @ 54 Mb/s	**802.11a (non HT20)** -92 dBm @ 6 Mb/s -91 dBm @ 9 Mb/s -89 dBm @ 12 Mb/s -87 dBm @ 18 Mb/s -85 dBm @ 24 Mb/s -81 dBm @ 36 Mb/s -77 dBm @ 48 Mb/s -76 dBm @ 54 Mb/s
	2.4-GHz **802.11n (HT20)** -93 dBm @ MCS0 -91dBm @ MCS1 -89dBm @ MCS2 -86 dBm @ MCS3 -82 dBm @ MCS4 -78 dBm @ MCS5 -77 dBm @ MCS6 -75 dBm @ MCS7 -93 dBm @ MCS8 -91 dBm @ MCS9 -89 dBm @ MCS10 -86 dBm @ MCS11 -82 dBm @ MCS12 -78 dBm @ MCS13 -77 dBm @ MCS14 -75 dBm @ MCS15	**5-GHz** **802.11n (HT20)** -92 dBm @ MCS0 -89 dBm @ MCS1 -87 dBm @ MCS2 -85 dBm @ MCS3 -81 dBm @ MCS4 -77 dBm @ MCS5 -76 dBm @ MCS6 -75 dBm @ MCS7 -90 dBm @ MCS8 -87 dBm @ MCS9 -85 dBm @ MCS10 -82 dBm @ MCS11 -78 dBm @ MCS12 -74 dBm @ MCS13 -73 dBm @ MCS14 -72 dBm @ MCS15	**5-GHz** **802.11n (HT40)** -89 dBm @ MCS0 -86 dBm @ MCS1 -84 dBm @ MCS2 -82 dBm @ MCS3 -78 dBm @ MCS4 -74 dBm @ MCS5 -73 dBm @ MCS6 -72 dBm @ MCS7 -87 dBm @ MCS8 -84 dBm @ MCS9 -82 dBm @ MCS10 -79 dBm @ MCS11 -75 dBm @ MCS12 -71 dBm @ MCS13 -70 dBm @ MCS14 -69 dBm @ MCS15
Maximum Transmit Power	**2.4 GHz** • 802.11b (CCK) ◦ 28 dBm with 2 antennas • 802.11g (non HT duplicate mode) ◦ 28 dBm with 2 antennas • 802.11n (HT20) ◦ 28 dBm with 2 antennas		**5 GHz** • 802.11a ◦ 28 dBm with 2 antennas • 802.11n non-HT duplicate (802.11a duplicate) mode ◦ 28 dBm with 2 antennas • 802.11n (HT20) ◦ 27 dBm with 2 antennas • 802.11n (HT40) • 27 dBm with 2 antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.			
Network Interface	• 10/100/1000BASE-T Ethernet, autosensing (RJ-45) • Fiber SFP • DOCSIS 3.0 (8x4) Cable modem interface (option available)		
Dimensions (W x L x H)	12.0 in. x 7.8 in. x 6.4 in. (30.48 cm x 19.81 cm x 16.26 cm) (including antenna mount)		
Weight	1552E: 17.3 lbs (7.8 kg) 1552C: 14 lbs (6.4 kg) 1552H: 17.6 lbs (8 kg) 1552I: 14 lbs (6.4 kg) Battery backup: 1.5 lbs (0.7kg) Pole mounting bracket: 6.1 lbs (2.8 kg) Cable strand mounting bracket: 1.3 lbs (0.6 kg)		

Item	Specification
Environmental	Operating temperature: -40 to 55°C (-40 to 131°F) plus Solar Loading Storage temperature: -50 to 85°C (-58 to 185°F) Wind resistance: • Up to 100 MPH sustained winds • Up to 165 MPH wind gusts
Environmental Ratings	• IP67 • NEMA Type 4X

Antenna Gain	• Integrated Dual Band Omni-directional Antenna Radome
	  ◦ 2 dBi (2.4GHz), 4 dBi (5GHz)
	• External Dual Band Omni-directional Antennas (AIR-ANT2547V-N)
	  ◦ 4 dBi (2.4GHz), 7 dBi (5GHz)

Powering Options	• 90-480 VAC, 47-63 Hz • 40 - 90 VAC, 47-63 Hz, quasi-square wave, Power over Cable • Power over Ethernet: 56 VDC, +/-10 percent • 12 VDC
Warranty	90 days

Compliance	**Safety**
	• UL 60950, 2nd Edition
	• CAN/CSA-C22.2 No. 60950, 2nd Edition
	• IEC 60950, 2nd Edition
	• EN 60950, 2nd Edition
	Immunity
	• <= 5 mJ for 6kV/3kA @ 8/20 ms waveform
	• ANSI/IEEE C62.41
	• EN61000-4-5 Level 4 AC Surge Immunity
	• EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity
	• EN61000-4-3 Level 4 EMC Field Immunity
	• EN61000-4-2 Level 4 ESD Immunity
	• EN60950 Overvoltage Category IV
	Radio approvals
	• FCC Part 15.247, 15.407
	• FCC Bulletin OET-65C
	• RSS-210
	• RSS-102
	• AS/NZS 4268.2003
	• EN 300 328
	• EN 301 893
	EMI and susceptibility
	• FCC part 15.107, 15.109
	• ICES-003
	• EN 301 489-1, -17
	Security
	• Wireless bridging/mesh
	  ◦ X.509 digital certificates
	  ◦ MAC address authentication
	  ◦ Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP)
	• Wireless access
	  ◦ 802.11i, Wi-Fi Protected Access (WPA2), WPA
	  ◦ 802.1X authentication, including Extensible Authentication Protocol and Protected EAP (EAP-PEAP), EAP Transport Lauer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), and Cisco LEAP
	  ◦ Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP)
	  ◦ VPN pass-through
	  ◦ IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP)
	• MAC address filtering
	Other
	• ATEX (AIR-CAP1552H-X-K9 only)

Plan, Build, and Run Services for a Seamless Outdoor Experience

Professional services from Cisco and Cisco Advanced Wireless LAN Specialized Partners facilitate a smooth deployment of the next-generation wireless outdoor solution, while tightly integrating it with the wired and indoor wireless networks. Based on proven methodologies for planning and deploying end-to-end solutions with secure voice, video, and data technologies and years of experience designing and implementing some of the world's most complex enterprise-class wireless networks, our specialists can help you optimize mobile connectivity to transform your business operations.

We work with your IT staff to see that your architecture, physical sites, and operational staff are ready to support Cisco's integrated, next-generation, outdoor wireless solution that combines the high performance of the 802.11n standard and Cisco CleanAir technology.

For More Information

For more information about Cisco wireless mesh, contact your local account representative or visit:
http://www.cisco.com/go/outdoorwireless

For more information about the Cisco Unified Wireless Network framework, visit:
http://www.cisco.com/go/unifiedwireless

For more information about the Cisco service provider Wi-Fi solution, visit:
http://www.cisco.com/go/ap1550

For more information about the Cisco Wireless LAN Services, visit:
http://www.cisco.com/go/wirelesslanservices

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