Cisco Aironet 1530 Series Outdoor Access Point

Compact Outdoor Wireless

- Most compact carrier-grade outdoor access point/mesh/bridge: 186 cubic in (3.0 liter), 5 lb (2.3 kg)
- 2.4- and 5-GHz radios (802.11b/g/n, 802.11a/n)
- 802.11n range and performance with MIMO technology
- Gigabit Ethernet 10/100/1000 WAN and LAN ports
- Controller-based or autonomous operation
- Powered via PoE or separate DC input
- IP67 enclosure with operating temperature range of -22°to 149°F (-30°to +65°C)

Cisco Aironet 1530I

- Integrated antennas
- 2.4 GHz: 3x3 MIMO, 3 spatial streams
- 5 GHz: 2x3 MIMO, 2 spatial streams
- Ultra low profile

Cisco Aironet 1530E

- External antennas
- 2.4 and 5 GHz: 2x2 MIMO, 2 spatial streams
- Supports dual-band or single-band antennas
- Versatile RF coverage with external antennas

Sleek, Innovative, Flexible, Proven

As carrier-grade Wi-Fi becomes a critical small-cell element in next-generation mobile networks, operators are requesting new access point designs that can pack a punch in a small form factor. The Cisco® Aironet® 1530 Series Outdoor Access Points incorporate a low-profile design that is aesthetically pleasing, yet they can withstand the most rugged outdoor conditions. Cisco brings engineering innovation to the platform with unique Cisco Flexible Antenna Port technology that allows the same antenna ports to be used either for dual-band antennas to reduce the antenna footprint or for single-band antennas to optimize radio coverage. This flexibility allows antenna changes to be made on the fly, and saves on sparing costs. And the Cisco Aironet 1530 Series brings all the same robust Wi-Fi features that operators have come to expect from Cisco, including radio resource management, BandSelect to automatically take advantage of the 5-GHz band, and VideoStream for high-quality video performance over Wi-Fi. Only Cisco delivers all of these features in a hardened outdoor access point that is ideal for any urban setting.

Compact, Place-Anywhere Design

Enterprise customers are also looking to expand their wireless coverage and provide seamless network access from indoor to outdoor areas. The Cisco Aironet 1530 Series Outdoor Access Points are small enough and light enough to be unobtrusively mounted on street light poles or building facades. The integrated antenna version is just 9 x 7 x 4 inches (23 x 17 x 10 cm) and weighs 5 pounds (2.3 kg). A solar shield/cover option is also available, and can be painted to match its surroundings to allow the access point to be even less noticeable (Figure 1).

**Figure 1.** Cisco Aironet 1530 Series with Solar Shield/Cover

Innovative, Integrated, and External Antenna Options

The Cisco Aironet 1530I Outdoor Access Point includes a dual-band, integrated antenna radome. This antenna has three omnidirectional antenna elements with antenna gains of 3 dBi (2.4 GHz) and 5 dBi (5 GHz). 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.

The innovatively designed Cisco Aironet 1530E Outdoor Access Point is designed with antenna Cisco Flexible Antenna Port technology, which can support either dual-band or single-band antennas on the same platform and is configurable via software. When configured for dual-band ports, the Aironet 1530E uses the bottom two antenna ports to connect to dual-band omnidirectional or directional antennas. Alternatively, and for additional radio coverage flexibility, the Aironet 1530E can be software-configured, enabling two separate 2.4-GHz and two 5-GHz antenna ports (Figure 2). This flexibility allows customers to use high-gain directional antennas for backhaul on 5 GHz while deploying omnidirectional antennas for access on 2.4 GHz. Refer to the Cisco Aironet 1530 Series Ordering Guide for the latest information on supported antennas.

Figure 2.   Cisco Aironet 1530E with Flexible Antenna Port Antenna Technology
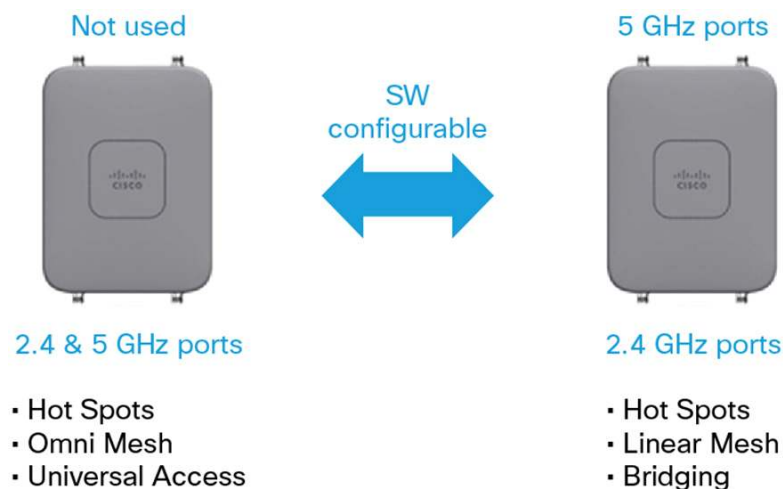

Flexible, High-Performance

The Cisco Aironet 1530 Series Outdoor Access Points offer a flexible, highly secure, and scalable platform that can be deployed as part of the Cisco Unified Wireless Network or as a standalone, autonomous solution. The Cisco Aironet 1530 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 or three spatial streams and up to 300-Mbps data rates. The Aironet 1530 Series can be deployed in the following configurations:

- Access point: Either in controller-based or standalone operation, provides Wi-Fi connectivity concurrently to clients on both 2.4-GHz and 5-GHz radios.
- Mesh network: as dedicated backhaul or universal access, the 5-GHz radio is used for wireless network connections to adjacent mesh nodes.
- Bridging: Provides point-to-point, high-capacity data links, as well as point-to-multipoint bridging for campuses.
- Workgroup bridge: Enables LAN mobility, such as on a vehicle.
- Serial backhaul: Extends linear mesh with two colocated Aironet 1530 Series access points connected via the LAN port (Figure 3).

Figure 3.　　Serial Backhaul Using Two Cisco Aironet 1530 Series Access Points
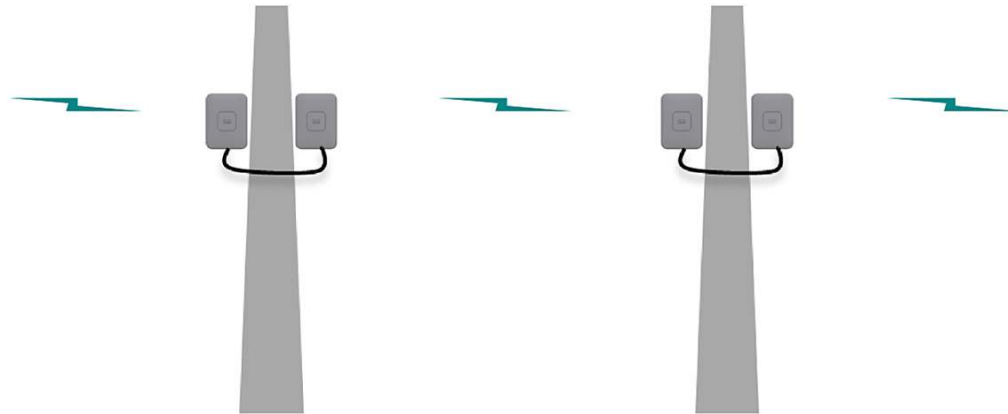
Centrally Managed Network

Central management and troubleshooting of the Cisco outdoor wireless access points help prevent costly maintenance service calls to outdoor locations. Cisco Prime™ Infrastructure works in conjunction with the Cisco Aironet access points and Cisco wireless LAN controllers to configure and manage the wireless networks. With Cisco Prime Infrastructure, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, security monitoring, and wireless LAN system management. 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, helping ensure that data remains private and secure and that the network is protected from unauthorized access.

Product Specifications

Table 1 lists the specifications for the Cisco Aironet 1530 Series.

Table 1.　　Cisco Aironet 1530 Series Product Specifications

Item	Specification
Part Numbers	**Cisco Aironet 1530I (internal antennas) and 1530E (external antennas) Outdoor Access Points**
	• AIR-CAP1532I-A-K9　　　AIR-CAP1532E-A-K9
	• AIR-CAP1532I-C-K9　　　AIR-CAP1532E-C-K9
	• AIR-CAP1532I-D-K9　　　AIR-CAP1532E-D-K9
	• AIR-CAP1532I-E-K9　　　AIR-CAP1532E-E-K9
	• AIR-CAP1532I-F-K9　　　AIR-CAP1532E-F-K9
	• AIR-CAP1532I-H-K9　　　AIR-CAP1532E-H-K9
	• AIR-CAP1532I-K-K9　　　AIR-CAP1532E-K-K9
	• AIR-CAP1532I-M-K9　　　AIR-CAP1532E-M-K9
	• AIR-CAP1532I-N-K9　　　AIR-CAP1532E-N-K9
	• AIR-CAP1532I-Q-K9　　　AIR-CAP1532E-Q-K9
	• AIR-CAP1532I-R-K9　　　AIR-CAP1532E-R-K9
	• AIR-CAP1532I-S-K9　　　AIR-CAP1532E-S-K9
	• AIR-CAP1532I-T-K9　　　AIR-CAP1532E-T-K9
	• AIR-CAP1532I-Z-K9　　　AIR-CAP1532E-Z-K9
	Cisco SMARTnet® Service for the Cisco Aironet 1530 Series Access Points
	Refer to the Service part numbers available on Cisco Commerce Workspace for available service offerings.
	Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

Item	Specification
802.11n and Related Capabilities	• 1530I: 3x3 MIMO with 3 spatial streams (2.4 GHz) and 2x3 MIMO with 2 spatial streams (5 GHz) • 1530E: 2x2 MIMO with 2 spatial streams (2.4 GHz) and 2x2 MIMO with 2 spatial streams (5 GHz) • 20-MHz (2.4 and 5 GHz) and 40-MHz (5 GHz only) channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) • Cyclic shift diversity (CSD) support

Data Rates Supported

802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

802.11b/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

802.11n data rates (2.4 and 5 GHz):

MCS Index[1]	GI[2] = 800 ns		GI = 400 ns	
	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
16	19.5		21.7	
17	39		43.3	
18	58.5		65	
19	78		86.7	
20	117		130	
21	156		173.3	
22	175.5		195	
23	195		216.7	

MCS 16-23 available on 1530I on 2.4 GHz only.

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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
Frequency Range and 20-MHz Operating Channels	-A Domain: • 2.412 to 2.462 GHz; 11 channels • 5.280 to 5.320 GHz; 3 channels • 5.500 to 5.560 GHz; 4 channels • 5.680 to 5.700 GHz; 2 channels • 5.745 to 5.825 GHz; 5 channels -C Domain: • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.825 GHz; 5 channels -D Domain: • 2.412 to 2.462 GHz; 11 channels • 5.745 to 5.865 GHz; 7 channels -E Domain: • 2.412 to 2.472 GHz; 13 channels • 5.500 to 5.580 GHz; 5 channels • 5.660 to 5.700 GHz; 3 channels -F Domain: • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.805 GHz, 4 channels -H Domain: • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.825 GHz; 5 channels -K Domain: • 2.412 to 2.462 GHz; 11 channels • 5.280 to 5.320 GHz; 3 channels • 5.500 to 5.620 GHz; 7 channels • 5.745 to 5.805 GHz; 4 channels -M Domain • 2.412 to 2.472 GHz; 13 channels • 5.500 to 5.580 GHz; 5 channels • 5.660 to 5.700 GHz; 3 channels -N Domain: • 2.412 to 2.462 GHz; 11 channels • 5.745 to 5.825 GHz; 5 channels -Q Domain: • 2.412 to 2.472 GHz; 13 channels • 5.500 to 5.700 GHz; 11 channels -R Domain: • 2.412 to 2.472 GHz; 13 channels • 5.260 to 5.320 GHz; 4 channels • 5.660 to 5.700 GHz; 3 channels • 5.745 to 5.825 GHz; 5 channels -S Domain: • 2.412 to 2.472 GHz; 13 channels • 5.500 to 5.700 GHz; 11 channels • 5.745 to 5.825 GHz; 5 channels -T Domain: • 2.412 to 2.462 GHz; 11 channels • 5.500 to 5.580 GHz; 5 channels • 5.660 to 5.700 GHz; 3 channels • 5.745 to 5.825 GHz; 5 channels -Z Domain: • 2.412 to 2.462 GHz; 11 channels • 5.500 to 5.580 GHz; 5 channels • 5.660 to 5.700 GHz; 3 channels

Item	Specification			
	• 5.745 to 5.825 GHz; 5 channels			
Note: These values vary by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.				

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: These values vary by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.				
Receive Sensitivity	**1530I** **802.11b (Complementary Code Keying [CCK])** -97 dBm @ 1 Mbps -94 dBm @ 2 Mbps -92 dBm @ 5.5 Mbps -90 dBm @ 11 Mbps	**1530I** **802.11g (non HT20)** -95 dBm @ 6 Mbps -92 dBm @ 9 Mbps -90 dBm @ 12 Mbps -87 dBm @ 18 Mbps -84 dBm @ 24 Mbps -81 dBm @ 36 Mbps -78 dBm @ 48 Mbps -75 dBm @ 54 Mbps	**1530E** **802.11b (Complementary Code Keying [CCK])** -96 dBm @ 1 Mbps -93 dBm @ 2 Mbps -91 dBm @ 5.5 Mbps -89 dBm @ 11 Mbps	**1530E** **802.11g (non HT20)** -93 dBm @ 6 Mbps -90 dBm @ 9 Mbps -88 dBm @ 12 Mbps -85 dBm @ 18 Mbps -82 dBm @ 24 Mbps -82 dBm @ 36 Mbps -76 dBm @ 48 Mbps -73 dBm @ 54 Mbps
2.4 GHz	**1530I** **802.11n (HT20)** -95 dBm @ MCS0 -90 dBm @ MCS1 -87 dBm @ MCS2 -84 dBm @ MCS3 -81 dBm @ MCS4 -78 dBm @ MCS5 -75 dBm @ MCS6 -74 dBm @ MCS7 -90 dBm @ MCS8 -85 dBm @ MCS9 -82 dBm @ MCS10 -79 dBm @ MCS11 -76 dBm @ MCS12 -73 dBm @ MCS13 -70 dBm @ MCS14 -69 dBm @ MCS15 -90 dBm @ MCS16 -85 dBm @ MCS17 -82 dBm @ MCS18 -79 dBm @ MCS19 -76 dBm @ MCS20 -73 dBm @ MCS21 -70 dBm @ MCS22 -69 dBm @ MCS23		**1530E** **802.11n (HT20)** -93 dBm @ MCS0 -88 dBm @ MCS1 -85 dBm @ MCS2 -82 dBm @ MCS3 -79 dBm @ MCS4 -76 dBm @ MCS5 -73 dBm @ MCS6 -72 dBm @ MCS7 -90 dBm @ MCS8 -85 dBm @ MCS9 -82 dBm @ MCS10 -79 dBm @ MCS11 -76 dBm @ MCS12 -73 dBm @ MCS13 -70 dBm @ MCS14 -69 dBm @ MCS15	
5 GHz	**1530I** **802.11a (non HT20)** -94 dBm @ 6 Mbps -91 dBm @ 9 Mbps -89 dBm @ 12 Mbps -86 dBm @ 18 Mbps -83 dBm @ 24 Mbps -80 dBm @ 36 Mbps -77 dBm @ 48 Mbps		**1530E** **802.11a (non HT20)** -92 dBm @ 6 Mbps -89 dBm @ 9 Mbps -87 dBm @ 12 Mbps -84 dBm @ 18 Mbps -81 dBm @ 24 Mbps -78 dBm @ 36 Mbps -75 dBm @ 48 Mbps	

Item	Specification			
	-74 dBm @ 54 Mbps		-72 dBm @ 54 Mbps	
	1530I **802.11n (HT20)**	**1530I** **802.11n (HT40)**	**1530E** **802.11n (HT20)**	**1530E** **802.11n (HT40)**
	-94 dBm @ MCS0	-91 dBm @ MCS0	-92 dBm @ MCS0	-89 dBm @ MCS0
	-89 dBm @ MCS1	-86 dBm @ MCS1	-87 dBm @ MCS1	-84 dBm @ MCS1
	-86 dBm @ MCS2	-83 dBm @ MCS2	-84 dBm @ MCS2	-81 dBm @ MCS2
	-83 dBm @ MCS3	-80 dBm @ MCS3	-81 dBm @ MCS3	-78 dBm @ MCS3
	-80 dBm @ MCS4	-77 dBm @ MCS4	-78 dBm @ MCS4	-75 dBm @ MCS4
	-77 dBm @ MCS5	-74 dBm @ MCS5	-75 dBm @ MCS5	-72 dBm @ MCS5
	-74 dBm @ MCS6	-71 dBm @ MCS6	-72 dBm @ MCS6	-69 dBm @ MCS6
	-73 dBm @ MCS7	-70 dBm @ MCS7	-71 dBm @ MCS7	-68 dBm @ MCS7
	-91 dBm @ MCS8	-88 dBm @ MCS8	-89 dBm @ MCS8	-86 dBm @ MCS8
	-86 dBm @ MCS9	-83 dBm @ MCS9	-84 dBm @ MCS9	-81 dBm @ MCS9
	-83 dBm @ MCS10	-80 dBm @ MCS10	-81 dBm @ MCS10	-78 dBm @ MCS10
	-80 dBm @ MCS11	-77 dBm @ MCS11	-78 dBm @ MCS11	-75 dBm @ MCS11
	-77 dBm @ MCS12	-74 dBm @ MCS12	-75 dBm @ MCS12	-72 dBm @ MCS12
	-74 dBm @ MCS13	-71 dBm @ MCS13	-72 dBm @ MCS13	-69 dBm @ MCS13
	-71 dBm @ MCS14	-68 dBm @ MCS14	-69 dBm @ MCS14	-66 dBm @ MCS14
	-70 dBm @ MCS15	-67 dBm @ MCS15	-68 dBm @ MCS15	-65 dBm @ MCS15
Maximum Transmit Power	**2.4 GHz** • 802.11b (CCK) ○ 27 dBm with 2 antennas ○ 29 dBm with 3 antennas • 802.11g (non HT duplicate mode) ○ 27 dBm with 2 antennas ○ 29 dBm with 3 antennas • 802.11n (HT20) ○ 27 dBm with 2 antennas ○ 29 dBm with 3 antennas		**5 GHz** • 802.11a ○ 27 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.			
Maximum Equivalent Isotropically Radiated Power (EIRP)	1530I: 32 dBm (2.4 and 5 GHz) 1530E: Tx power plus external antenna gain. **Note:** The maximum EIRP will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.			
3G/LTE/WiMAX Co-Location	3G/LTE/WiMAX signal rejection: 33-45 dB. Refer to product documentation for specific details.			
Interfaces	WAN port: 10/100/1000BASE-T Ethernet, autosensing (RJ-45) LAN port: 10/100/1000BASE-T Ethernet, autosensing (RJ-45) Management console port (RJ-45) with Reset button DC power input Multicolor LED			
Dimensions (L x W x H)	1530I: 9 x 7 x 4 in. (23 x 17 x 10 cm) Volume: 179 cubic in. (2.9 liters) 1530E: 10 x 7 x 4 in. (26 x 17 x 10 cm) Volume: 186 cubic in. (3.0 liters)			
Weight	1530I: 5.0 lb (2.3 kg) 1530E: 5.5 lb (2.5 kg) Wall/pole mounting bracket: 0.5 lb (0.2 kg) Tilt/horizontal mounting bracket: 2.4 lb (1.1 kg)			
Environmental	Operating temperature: -30° to 65°C (-22° to 149°F) ambient; -30° to 55°C (-22° to 131°F) with solar loading (1200 W/m^2) Storage temperature: -50° to 85°C (-58° to 185°F) Operating altitude: 10,000 ft (3048 m) Wind resistance: • Up to 100 mph sustained winds • Up to 140 mph wind gusts			

Item	Specification
Environmental Ratings	- IEC 60529 IP67 - Icing protection MIL-STD-810F (13mm) - Corrosion MIL-STD-810F (192 hours) - Solar radiation EN 60068-2-5 (1200 W/m^2) - Vibration ANSI_C136.31-2001
Antenna Gain	- Integrated dual-band omnidirectional antenna radome (1530I) 3 dBi (2.4 GHz), 5 dBi (5 GHz) - External dual-band omnidirectional antennas - AIR-ANT2547VG-N (4dBi, 2.4 GHz; 7 dBi, 5 GHz) - External dual-band directional antennas - AIR-ANT2588P3M-N= (8 dBi, 2.4 and 5 GHz) - External single-band antennas 2.4 GHz - AIR-ANT2450V-N (5 dBi, omni) - AIR-ANT2480V-N (8 dBi, omni) - AIR-ANT2413P2M-N= (13 dBi, dual polarized patch) 5 GHz - AIR-ANT5180V-N (8 dBi, omni) - AIR-ANT5114P2M-N= (14 dBi, dual polarized patch) For antenna details, please refer to the Antenna webpage: http://www.cisco.com/go/antennas
Powering Options	**1530I/1530E** 24 to 57 VDC - Power over Ethernet (PoE) (802.3at+ or Cisco Universal PoE [UPoE])
Power Consumption	1530I: < 30 W 1530E: < 25 W
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 - ARIB-STD 66 (Japan) - ARIB-STD T71 (Japan) - 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

Item	Specification
	○ X.509 digital certificates ○ MAC address authentication ○ Advanced Encryption Standard (AES), Temporal Key Integrity Protocol (TKIP) • Wireless access ○ 802.11i, Wi-Fi Protected Access (WPA2), WPA ○ 802.1X authentication, including Extensible Authentication Protocol (EAP) and Protected EAP (EAP-PEAP), EAP Transport Layer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), EAP-Subscriber Identity Module -d (EAP-SIM), and Cisco LEAP ○ VPN pass-through ○ IP Security (IPsec) ○ Layer 2 Tunneling Protocol (L2TP) • MAC address filtering
Warranty	1 year

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. With 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 with the high performance of the 802.11n standard.

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 about the Cisco 1530 solution, visit: http://www.cisco.com/en/US/products/ps12831/index.html.

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

For more information about Cisco Wireless LAN Mobility, visit: http://www.cisco.com/go/mobility.

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