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Cisco Aironet 1540 Series Outdoor Access Points

Contents

Cisco® Aironet® 1540 Series outdoor access points offer the latest 802.11ac Wave 2 functions in a rugged, ultra-low-profile housing that service providers and enterprises can deploy easily.

The Cisco Aironet 1540 Series is ideal for applications requiring rugged outdoor Wi-Fi coverage and supports the latest 802.11ac Wave 2 radio standard. Housed in a compact, aesthetically pleasing, easy-to-deploy package, the 1540 Series offers flexible deployment options for service providers and enterprise networks that need the fastest links possible for mobile outdoor clients (smartphones, tablets, and laptops) and wireless backhaul. The 1540 Series access points give network operators the flexibility to balance their desired wireless coverage with their need for easy deployment.

Whether deployed as a traditional access point or a wireless mesh access point, the 1540 Series provides the throughput capacity needed for to   -hungry devices.

Features and benefits

By adhering to the 802.11ac Wave 2 standard, the 1540 Series provides a data rate of up to 867 Mbps on the 5-GHz radio. This exceeds the data rates offered by access points that support the 802.11n standard. It also enables a total aggregate dual-radio data rate of up to 1.1 Gbps. This provides the necessary foundation for enterprise and service provider networks to stay ahead of the performance expectations and needs of their wireless users.

In recent years corporate users have increasingly preferred wireless access as the form of network connectivity due to its   -to-day work, but should enable a high-performance experience. The 1540 Series delivers this performance with highly secure and reliable wireless connections for mobile end users.

Table 1 lists the features and benefits of the 1540 Series.

Features and benefits of Cisco Aironet 1540 Series

	light poles without disturbing the aesthetics of the area.
	Provides up to 867-Mbps data rates with 2 x 2 Multiuser Multiple-Input, Multiple-Output (MU-MIMO) with up to two spatial streams.
	Allows transmission of data to multiple 802.11ac Wave 2-capable clients simultaneously to improve client experience. Prior to the 802.11ac Wave 2 standard, access points could transmit data to only one client at a time, typically referred to as single-user MIMO.

	Allows for deployment in a variety of ways, including as traditional access points and in mesh networks. The access points can also be deployed with the Cisco Mobility Express Solution. This deployment is ideal for small to medium-sized networks that that require 50 or fewer access points without a physical controller. All deployment modes are easy to set up and configure.

The Cisco Aironet 1540 Series offers the following features:

- Compact, lightweight size: At just over 2.5 pounds (1 kg) and with a small footprint, the 1540 Series is one of the smallest outdoor access points with internal antennas.

- Low power consumption: Achieves full operation on standard 802.3af power (13.9W).

- Integrated antenna options: The 1540 Series offers two models with different antenna patterns to address a variety of use cases.

Product specifications

Table 2 lists the specifications of the 1540 Series access points.

Specifications

	• 1542I/D: 2 x 2 MIMO with two spatial streams • Multiuser and single-user MIMO • Maximal Ratio Combining (MRC) • 802.11ac beamforming (transmit beamforming) • 20-, 40-, and 80-MHz channels • PHY data rates up to 867 Mbps (80 MHz in 5 GHz) • Packet aggregation: A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx) • 802.11 Dynamic Frequency Selection (DFS) • Cyclic-Shift-Diversity (CSD) support
	• 1542I/D: 2 x 2 MIMO with two spatial streams • MRC • 20- and 40-MHz channels (40 MHz in 5 GHz) • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx) • 802.11 DFS • CSD support

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 on 2.4 and 5 GHz:

MCS Index	GI = 800 ns		GI = 400 ns	
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	58.5	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

802.11ac Data Rates (5 GHz)

1	0	6.5	13.5	29.3	7.2	15	32.5
1	1	13	27	58.5	14.4	30	65
1	2	19.5	40.5	87.8	21.7	45	97.5
1	3	26	54	117	28.9	60	130
1	4	39	81	175.5	43.3	90	195
1	5	52	108	234	57.8	120	260
1	6	58.5	121.5	263.3	65	135	292.5
1	7	65	135	292.5	72.2	150	325
1	8	78	162	351	86.7	180	390
1	9		180	390		200	433.3
2	0	13	27	58.5	14.4	30	65

2	1	26	54	117	28.9	60	130
2	2	39	81	175.5	43.3	90	195
2	3	52	108	234	57.8	120	260
2	4	78	162	351	86.7	180	390
2	5	104	216	468	115.6	240	520
2	6	117	243	526.5	130	270	585
2	7	130	270	585	144.4	300	650
2	8	156	324	702	173.3	360	780
2	9		360	780		400	866.7

A:
2.412 to 2.462 GHz, 11 channels
5.280 to 5.320 GHz, 3 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
B:
2.412 to 2.462 GHz, 11 channels
5.180 to 5.240 GHz, 4 channels
5.260 to 5.320 GHz, 4 channels
5.500 to 5.720 GHz, 12 channels
5.745 to 5.825 GHz, 5 channels
C:
2.412 to 2.472 GHz, 13 channels
5.745 to 5.825 GHz, 5 channels
D:
2.412 to 2.462 GHz, 11 channels
5.745 to 5.865 GHz, 7 channels
E:
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:
2.412 to 2.472 GHz, 13 channels
5.745 to 5.805 GHz, 4 channels
G:
2.412 to 2.472 GHz, 13 channels
5.745 to 5.825 GHz, 5 channels
H:
2.412 to 2.472 GHz, 13 channels
5.745 to 5.825 GHz, 5 channels
I:

	2.412 to 2.472 GHz, 13 channels K: 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 L: 2.412 to 2.472 GHz, 13 channels 5.500 to 5.620 GHz, 7 channels 5.745 to 5.865 GHz, 7 channels M: 2.412 to 2.472 GHz, 13 channels 5.500 to 5.580 GHz, 5 channels 5.660 to 5.700 GHz, 3 channels 5.745 to 5.805 GHz, 4 channels -N: 2.412 to 2.462 GHz, 11 channels 5.745 to 5.825 GHz, 5 channels -Q: 2.412 to 2.472 GHz, 13 channels 5.500 to 5.700 GHz, 11 channels -R: 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: 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: 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: 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

ual countries. To verify approval that corresponds to a

- 802.11a:
  - 20 MHz: 27
- 802.11n:
  - 20 MHz: 27
  - 40 MHz: 13
- 802.11ac:
  - 20 MHz: 27
  - 40 MHz: 13
  - 80 MHz: 6

entation for specific details for each regulatory domain.

1542D)

-100	NA	NA
-92	NA	NA
-95	25	-93
-89	25	-87
-79	24	-77
-95	25	-92
-84	25	-82
-76	23	-74
-94		-91
-82	25	-80

	2			25	-77
	2			23	-70
	1			25	-92
	1			24	-82
	1			21	-74
	1			20	-70
	2			25	-91
	2			24	-80
	2			21	-72
	2			20	-68
	1			25	-90
	1			23	-79
	1			20	-72
	1			19	-68
	1			19	-66
	2			25	-89
	2			23	-77
	2			20	-70
	2			19	-66
	2			19	-64
	1			25	-87
	1			23	-76
	1			21	-69
	1			19	-64
	1			19	-62
	2			25	-86
	2			23	-74
	2			21	-67
	2			19	-62
	2			19	-60

The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

	• 2.4 GHz: 27 dBm with 2 antennas • 5 GHz: 25 dBm with 2 antennas	• 2.4 GHz: 27 dBm with 2 antennas • 5 GHz: 25 dBm with 2 antennas

The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation f or specific details.

	• WAN port 10/100/1000BASE-T Ethernet, autosensing (RJ-45), PoE in • Management console port (RJ-45) • Multicolor LED/Reset button
	Ethernet and wireless mesh
	1542I/D: 7.9 x 5.9 x 2.4 in.(20 x 15 x 6.1 cm)
	1542I/D: 2.75 lb (1.25 kg)
	Operating temperature: • 40° to 65°C (40° to 149°F) ambient air with no solar loading • 40° to 55°C (40° to 131°F) ambient air with solar loading •

	- UL60950, 2nd Edition - CAN/CSA-C22.2 No. 60950, 2nd Edition - IEC 60950, 2nd Edition - EN 60950, 2nd Edition
	- <= 5 mJf or 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 2 ESD Immunity - EN60950 Overvoltage Category IV
	- 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
	- FCC part 15.107, 15.109 - ICES-003 - EN 301 489-1, -17
	- Wireless bridging/mesh - X.509 digital certificates - MAC address authentication - Advanced Encryption Standard (AES)
	- 802.11i, Wi-Fi Protected Access 2 (WPA2), and 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 (EAP-SIM), and Cisco LEAP - VPN pass-through - IP Security (IPsec) - Layer 2 Tunneling Protocol (L2TP) - MAC address filtering
	1-year limited hardware warranty

Ordering information

Table 3 gives ordering information for the Cisco Aironet 1540 Series.

	• AIR-AP1542I-x-K9: Dual-band 802.11a/g/n/ac, Wave 2, internal omni antennas
	• AIR-AP1542D-x-K9: Dual-band 802.11a/g/n/ac, Wave 2, internal directional antennas
	Regulatory domains: (x = regulatory domain).
	Customers are responsible f or verifying approval f or use in their individual countries. To verify approval that corresponds to a particular country or the regulatory domain used in a specific country, visit https://www.cisco.com/go/aironet/compliance.
	Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.
	Refer to the service part numbers on Cisco Commerce Workspace f or available service offerings.

Warranty information

The Cisco Aironet 1540 Series access points come with a 1 -year limited warranty that provides full warranty coverage of the hardware. The warranty includes 10 -day advance hardware replacement and helps ensure that software media are defect-free for 90 days. For more details, visit https://www.cisco.com/go/warranty.

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Realize the full business value of your technology investments faster with intelligent, customized services from Cisco. Backed by deep networking expertise, Cisco Wireless LAN Services enable you to deploy a sound, scalable mobility network that enables rich media collaboration while improving the operational efficiency gained from a converged wired and wireless network infrastructure based on the Cisco Unified Wireless Network. We offer expert advisory, implementation and optimization services to accelerate your transition to advanced mobility services while continuously optimizing the performance, reliability, and security of that architecture after it is deployed. In addition, Smart Net Total Care service helps you protect your investment and derive maximum value from your Cisco products. Delivered by Cisco and backed by your trusted partner, this comprehensive service includes access to the Cisco Technical Assistance Center 24 hours a day, 365 days a year, IOS software updates, online resources, and expedited hardware replacement when needed. The Smart Net Total Care service helps you solve problems faster, improve operational efficiency, and reduce the risk of downtime. For more details, visit: https://www.cisco.com/c/en/us/products/wireless/service-listing.html.

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