Data Sheet

Cisco Aironet 2800 Series Access Points

The Cisco® Aironet® 2800 Series Wi-Fi access points are highly versatile and deliver the most functionality in the industry.

Product overview

For organizations paving the way for the new 802.11ac Wave 2 standard, the Cisco Aironet 2800 Series is the perfect solution. The access points go beyond getting ready for the new standard, providing the ultimate in flexibility and versatility.

For large enterprise organizations that rely on Wi-Fi to engage with customers, the 2800 Series is a hands-off -device activities and usage. This automation allows you to devote time to other pressing matters, secure in the knowledge that your Wi-Fi network is performing to its utmost potential.

The Aironet 2800 Series is packed with the features and capabilities that have made Cisco the industry leader, at a price point that is ideal for managing wireless growth, capacity, and coverage gaps in dense indoor environments.

Features and benefits

Feature	Benefit
802.11ac Wave 2 support	Provides a theoretical connection rate of up to 2.6 Gbps per radio -end 802.11ac access points.
High Density Experience (HDX)	Best-in-class RF architecture, which provides high-performance coverage for a high density of client devices, giving the end user a seamless wireless experience. HDX includes features such as custom hardware in 802.11ac Wave 2 radios, Cisco CleanAir®, ClientLink 4.0, cross-access point noise reduction, and an optimized client roaming experience.
Multiuser Multiple-Input Multiple-Output (MU-MIMO) technology	Supporting three spatial streams, MU-MIMO enables access points to split spatial streams between client devices, to maximize throughput.

Feature	Benefit
Flexible Radio Assignment	Allows the access points to intelligently determine the operating mode of serving radios based on the RF environment. The access points can operate in the following modes: **2.4-GHz and 5-GHz mode:** One radio will serve clients in 2.4-GHz mode, while the other serves clients in 5-GHz mode. **Dual 5-**

Working together, the 2800 Series and DNA offer such features as:

- Flexible Radio Assignment
- Cisco Connected Mobile Experiences
- Cisco High Density Experience
- Apple FastLane
- Cisco Identity Services Engine
- And much more

The result? Your network stays relevant, becomes digital-ready, and is the lifeblood of your organization.

High-density experience

Building on the Cisco Aironet heritage of RF excellence, the 2800 Series access points run on a purpose-built, innovative chipset with a best-in-class RF architecture. This chipset provides a high-density experience for enterprise networks designed for mission-critical, high-performance applications.

11ac-enabled access points, and delivers a robust mobility experience based on the following product features:

- 802.11ac Wave 2 with 4x4 Multiuser Multiple-Input Multiple-Output (MU-MIMO) technology supporting three spatial streams. MU-MIMO enables access points to split spatial streams between client devices to maximize throughput.

With two radios built into each access point, the 2800 Series is more versatile than any access point currently on the market. These radios are outfitted with Flexible Radio Assignment, which means that the access points automatically self-optimize to better serve the environment. For example, one of the radios broadcasts its signal on the 5-GHz channel and the other sends out a 2.4-GHz signal. The access point understands the wireless environment and will automatically switch the 2.4-GHz signal to a 5-GHz signal, increasing the reliability of your Wi-Fi use. This setting automatically works in reverse too, the access point recognizes that the RF environment has changed as reverts changes back to its original configuration.

The access point also dynamically changes the radio settings based on the wireless environment. The 2800 Series Wave 2 access point will allow one of the radios to operate in Wireless Security Monitoring mode. Allowing you to detect wireless security threats, interference, and combat rogue access. This valuable information can be culled in an easy-to-understand matrix to inform you about your customers.

- **Optimized access point roaming** to ensure that client devices associate with the access point in their coverage range that offers the fastest data rate available.
- **Cisco ClientLink 4.0** technology to improve downlink performance to all mobile devices, including one-, two-, and three-spatial-stream devices on 802.11a/b/g/n/ac. At the same time, the technology improves battery life on mobile devices.
- **Cisco CleanAir** technology enhanced with 160-MHz channel support. CleanAir delivers proactive, high-speed spectrum intelligence across 20-, 40-, and 80-, and 160-MHz* wide channels to combat performance problems due to wireless interference.
- **MIMO equalization** capabilities, which optimize uplink performance and reliability by reducing the impact of signal fade.

Product specifications

Item	Specification
Part numbers	**Cisco Aironet 2800i Access Point: Indoor environments, with internal antennas** AIR-AP2802I-x-K9: Dual-band, controller-based 802.11a/g/n/ac AIR-AP2802I-xK910: Eco-pack (dual-band 802.11a/g/n/ac) 10 quantity access points AIR-AP2802I-D-K9I: Dual-band, controller-based 802.11a/g/n/ac (India only) **Cisco Aironet 2800i Access Point Configurable: Indoor environments, with internal antennas** AIR-AP2802I-x-K9C: Dual-band, controller-based 802.11a/g/n/ac, configurable AIR-AP2802I-xK910C: Eco-pack (dual-band 802.11a/g/n/ac) 10 quantity access points, configurable **Cisco Aironet 2800e Access Point: Indoor, challenging environments, with external antennas** AIR-AP2802E-**x**-K9: Dual-band controller-based 802.11a/g/n/ac AIR-AP2802E-**x**K910: Eco-pack (dual-band 802.11a/g/n/ac), 10 quantity access points **Cisco Aironet 2800e Access Point Configurable: Indoor, challenging environments, with external antennas** AIR-AP2802E-**x**-K9C: Dual-band controller-based 802.11a/g/n/ac, configurable AIR-AP2802E-**x**K910C: Eco-pack (dual-band 802.11a/g/n/ac), 10 quantity access points, configurable **Regulatory domains: (x = regulatory domain)** Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular 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. **Cisco Wireless LAN Services** AS-WLAN-CNSLT: Cisco Wireless LAN Network Planning and Design Service AS-WLAN-CNSLT: Cisco Wireless LAN 802.11n Migration Service AS-WLAN-CNSLT: Cisco Wireless LAN Performance and Security Assessment Service
Software	Cisco Unified Wireless Network Software Release 8.2.111.0 or later Cisco IOS® XE Software Release 16.3
Supported wireless LAN controllers	Cisco 2500 Series Wireless Controllers, Cisco 3500 Series Wireless Controllers, Cisco Wireless Controller Module for ISR G2, Cisco Wireless Services Module 2 (WiSM2) for Catalyst® 6500 Series Switches, Cisco 5500 Series Wireless Controllers, Cisco Flex® 7500 Series Wireless Controllers, Cisco 8500 Series Wireless Controllers, Cisco 9800 series Wireless Controllers, Cisco Virtual Wireless Controller Cisco Catalyst 3850 Series Switches, Cisco Catalyst 3650 Series Switches Cisco Mobility Express
802.11n version 2.0 (and related) capabilities	4x4 MIMO with three spatial streams Maximal Ratio Combining (MRC) 802.11n and 802.11a/g beamforming 20- and 40-MHz channels PHY data rates up to 450 Mbps (40 MHz with 5 GHz) Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) 802.11 Dynamic Frequency Selection (DFS) Cyclic Shift Diversity (CSD) support
802.11ac Wave 1 capabilities	4x4 MIMO with three spatial streams MRC 802.11ac beamforming 20-, 40-, and 80-MHz channels PHY data rates up to 1.3 Gbps (80 MHz in 5 GHz) Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) 802.11 DFS CSD support
802.11ac Wave 2 capabilities	4x4 MU-MIMO with three spatial streams MRC 802.11ac beamforming 20-, 40-, 80, 160-MHz channels

Item	Specification	
Integrated antenna	**Flexible radio (either 2.4 GHz or 5 GHz)** 2.4 GHz, gain 4 dBi, internal antenna, omnidirectional in azimuth 5 GHz, gain 6 dBi, internal directional antenna, elevation plane beamwidth 90° **Dedicated 5-GHz radio** 5 GHz, gain 5 dBi, internal antenna, omnidirectional in azimuth	
External antenna (sold separately)	2802e Series access points are certified for use with antenna gains up to 6 dBi (2.4 GHz and 5 GHz) Cisco offers the industry's broadest selection of antennas, delivering optimal coverage for a variety of deployment scenarios	
Smart antenna connector	Available on the 2802e Series access points only Requires the AIR-CAB002-DART-R= 2 ft smart antenna connector to RP-TNC connectors to connect a second antenna to the access point Required when running the flexible radio as either a second 5-GHz serving radio or Wireless Security Monitoring radio	
Interfaces	2802I/E ◦ 2x100/1000BASE-T autosensing (RJ-45) Management console port (RJ-45) USB 2.0 (enabled via future software)	
Indicators	Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors	
Dimensions (W x L x H)	Access point (without mounting brackets):	
Weight	**Cisco Aironet 2802i** 3.53 lb (1.6 kg) **Cisco Aironet 2802e** 4.6 lb (2.09 kg)	
Input power requirements	802.3at PoE+, Cisco Universal PoE (Cisco UPOE®) 802.3at power injector (AIR-PWRINJ6=)	
Power draw	22.5W at the PSE (20W at the PD) with all features enabled except for the USB 2.0 port 26.5W at the PSE (23W at the PD) with the USB 2.0 port enabled	
Environmental	**Cisco Aironet 2802i** Nonoperating (storage) temperature: -22° to 158°F (-30° to 70°C) Operating temperature: 32° to 104°F (0° to 40°C) Operating humidity: 10% to 90% (noncondensing) **Cisco Aironet 2802e** Nonoperating (storage) temperature: -22° to 158°F (-30° to 70°C) Operating temperature: -4° to 122°F (-20° to 50°C) Operating humidity: 10% to 90% (noncondensing)	
System memory	1024 MB DRAM 256 MB flash	
Warranty	Limited lifetime hardware warranty	
Available transmit power settings	**2.4 GHz** 23 dBm (200 mW) 20 dBm (100 mW) 17 dBm (50 mW) 14 dBm (25 mW) 11 dBm (12.5 mW) 8 dBm (6.25 mW) 5 dBm (3.13 mW) 2 dBm (1.56 mW)	**5 GHz** 23 dBm (200 mW) 20 dBm (100 mW) 17 dBm (50 mW) 14 dBm (25 mW) 11 dBm (12.5 mW) 8 dBm (6.25 mW) 5 dBm (3.13 mW) 2 dBm (1.56 mW)

Item	Specification	
Frequency band and 20-MHz operating channels	**A (A regulatory domain):** 2.412 to 2.462 GHz; 11 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) 5.745 to 5.825 GHz; 5 channels **B (B regulatory domain):** 2.412 to 2.462 GHz; 11 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.720 GHz; 12 channels 5.745 to 5.825 GHz; 5 channels **C (C regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.745 to 5.825 GHz; 5 channels **D (D regulatory domain):** 2.412 to 2.462 GHz; 11 channels 5.180 to 5.320 GHz; 8 channels 5.745 to 5.825 GHz; 5 channels **E (E regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) **F (F regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.745 to 5.805 GHz; 4 channels **G (G regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.745 to 5.825 GHz; 5 channels **H (H regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.150 to 5.350 GHz; 8 channels 5.745 to 5.825 GHz; 5 channels	**I (I regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels **K (K regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.620 GHz; 7 channels 5.745 to 5.805 GHz; 4 channels **N (N regulatory domain):** 2.412 to 2.462 GHz; 11 channels 5.180 to 5.320 GHz; 8 channels 5.745 to 5.825 GHz; 5 channels **Q (Q regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.700 GHz; 11 channels **R (R regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels 5.660 to 5,805 GHz; 7 channels **S (S regulatory domain):** 2.412 to 2.472 GHz; 13 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.700 GHz;, 11 channels 5.745 to 5.825 GHz; 5 channels **T (T regulatory domain):** 2.412 to 2.462 GHz; 11 channels 5.280 to 5.320 GHz; 3 channels 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) 5.745 to 5.825 GHz; 5 channels **Z (Z regulatory domain):** 2.412 to 2.462 GHz; 11 channels 5.180 to 5.320 GHz; 8 channels 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) 5.745 to 5.825 GHz; 5 channels
Note: Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit https://www.cisco.com/go/aironet/compliance.		
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: 25 FCC, 16 EU 802.11n: ◦ 20 MHz: 25 FCC, 16 EU ◦ 40 MHz: 12 FCC, 7 EU ◦ 20 MHz: 25 FCC, 16 EU ◦ 40 MHz: 12 FCC, 7 EU ◦ 80 MHz: 6 FCC, 3 EU ◦ 160 MHz 2 FCC, 1 EU
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Compliance standards	◦ UL 60950-1 ◦ CAN/CSA-C22.2 No. 60950-1 ◦ UL 2043 ◦ IEC 60950-1 ◦ EN 60950-1	

Item	Specification
	◦ EN 50155 for 2800e (Operating temperature -20° to 50°C) Radio approvals: ◦ FCC Part 15.107, 15.109, 15.247, 15.407, 14-30 ◦ RSS-247 (Canada) ◦ EN 300.328, EN 301.893 (Europe) ◦ ARIB-STD 66 (Japan) ◦ ARIB-STD T71 (Japan) ◦ EMI and susceptibility (Class B) ◦ ICES-003 (Canada) ◦ VCCI (Japan) ◦ EN 301.489-1 and -17 (Europe) ◦ EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC IEEE standards: ◦ IEEE 802.11a/b/g, 802.11n, 802.11h, 802.11d ◦ IEEE 802.11ac Security: ◦ 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA ◦ 802.1X ◦ Advanced Encryption Standards (AES) Extensible Authentication Protocol (EAP) types: ◦ EAP-Transport Layer Security (TLS) ◦ EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MCSHAPv2) ◦ Protected EAP (PEAP) v0 or EAP-MSCHAPv2 ◦ EAP-Flexible Authentication via Secure Tunneling (FAST) ◦ PEAP v1 or EAP-Generic Token Card (GTC) ◦ EAP-Subscriber Identity Module (SIM) Multimedia: ◦ Wi-Fi Multimedia (WMM) Other: ◦ FCC Bulletin OET-65C ◦ RSS-102
Data rates supported	802.11b: 1, 2, 5.5, and 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps 802.11n HT20: 6.5 to 216.7 Mbps (MCS0 to MCS23) 802.11n HT40: 13.5 to 450 Mbps (MCS0 to MCS23) 802.11ac VHT20: 6.5 to 288.9 Mbps (MCS0 to 8 SS 1, MCS0 to 9 SS 2 and 3) 802.11ac VHT40: 13.5 to 600 Mbps (MCS0 to 9 SS 1 to 3) 802.11ac VHT80: 29.3 to 1300 Mbps (MCS0 to 9 SS 1 to 3) 802.11ac VHT160: 58.5 to 2304 Mbps (MCS0 to 9 SS 1 and 2, MCS0 to 8 SS 3)

Transmit power and receive sensitivity

Spatial streams		5-GHz radio		2.4-GHz flexible radio		5-GHz flexible radio	
		Total Tx power (dBm)	Rx sensitivity (dBm)	Total Tx power (dBm)	Rx sensitivity (dBm)	Total Tx power (dBm)	Rx sensitivity (dBm)
802.11/11b							
1 Mbps	1	NA	NA	23	-101	NA	NA
11 Mbps	1	NA	NA	23	-88	NA	NA

Item	Specification						
802.11a/g							
6 Mbps	1	23	-93	23	-91	23	-92
24 Mbps	1	23	-89	23	-87	23	-89
54 Mbps	1	23	-81	23	-77	22	-80
802.11n HT20							
MCS0	1	23	-93	23	-91	23	-93
MCS4	1	23	-88	23	-86	23	-87
MCS7	1	23	-79	23	-77	22	-78
MCS8	2	23	-93	23	-91	21	-93
MCS12	2	23	-86	23	-85	23	-86
MCS15	2	23	-79	23	-77	21	-78
MCS16	3	23	-93	23	-91	23	-92
MCS20	3	23	-85	23	-84	22	-84
MCS23	3	23	-78	23	-76	18	-77
802.11n HT40							
MCS0	1	23	-90			23	-89
MCS4	1	23	-85			23	-84
MCS7	1	23	-76			23	-75
MCS8	2	23	-90			23	-89
MCS12	2	23	-83			23	-83
MCS15	2	23	-76			21	-76
MCS16	3	23	-90			23	-89
MCS20	3	23	-82			23	-81
MCS23	3	23	-75			20	-74
802.11ac VHT20							
MCS0	1	23	-93			23	-92
MCS4	1	23	-88			23	-87
MCS7	1	23	-82			22	-80
MCS8	1	23	-77			21	-75
MCS0	2	23	-93			23	-91
MCS4	2	23	-86			23	-84
MCS7	2	23	-79			21	-77
MCS8	2	23	-75			20	-73
MCS9	2	NA	NA			NA	NA
MCS0	3	23	-93			23	-91
MCS4	3	23	-85			22	-83
MCS7	3	23	-78			20	-76
MCS8	3	23	-74			19	-72
MCS9	3	23	-72			18	-70
802.11ac VHT40							
MCS0	1	23	-90			23	-89
MCS4	1	23	-85			23	-84
MCS7	1	23	-78			22	-77
MCS8	1	23	-75			21	-73

Item		Specification					
MCS9	1	23	-73			20	-72
MCS0	2	23	-90			23	-89
MCS4	2	23	-83			23	-82
MCS7	2	23	-76			21	-75
MCS8	2	23	-73			20	-72
MCS9	2	23	-71			19	-69
MCS0	3	23	-90			23	-89
MCS4	3	23	-82			23	-80
MCS7	3	23	-74			20	-73
MCS8	3	23	-70			19	-68
MCS9	3	23	-69			18	-67
802.11ac VHT80							
MCS0	1	23	-87			23	-86
MCS4	1	23	-83			23	-81
MCS7	1	23	-76			22	-74
MCS8	1	23	-72			21	-70
MCS9	1	23	-69			20	-68
MCS0	2	23	-87			23	-86
MCS4	2	23	-80			23	-79
MCS7	2	23	-73			21	-72
MCS8	2	23	-69			20	-68
MCS9	2	23	-67			19	-66
MCS0	3	23	-87			23	-86
MCS4	3	23	-77			23	-77
MCS7	3	23	-72			20	-70
MCS8	3	23	-67			19	-66
MCS9	3	22	-65			18	-64
802.11ac VHT160							
MCS0	1	23	-83			23	-83
MCS4	1	23	-78			23	-78
MCS7	1	23	-71			22	-71
MCS8	1	23	-67			21	-68
MCS9	1	23	-66			20	-66
MCS0	2	23	-83			23	-83
MCS4	2	23	-76			23	-76
MCS7	2	23	-69			21	-69
MCS8	2	23	-65			20	-66
MCS9	2	23	-63			19	-63
MCS0	3	23	-82			23	-83
MCS4	3	23	-74			22	-74
MCS7	3	23	-67			20	-68
MCS8	3	23	-62			19	-62

Warranty information

The Cisco Aironet 2800 Series Access Points come with a limited lifetime warranty that provides full warranty coverage of the hardware for as long as the original end user continues to own or use the product. The warranty includes 10-day advance hardware replacement and ensures that software media are defect-free for 90 days. For more details, visit https://www.cisco.com/go/warranty.

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