# Wireless Comparison - 1500, 1400, 1300

**Last Updated: Oct 13, 2005**

This Portable Product Sheet is provided as reference for comparing the Cisco 1500, 1400, and 1300 series wireless products. For additional details please refer to the product literature and technical documents on http://www.cisco.com.

**Wireless 1500, 1400, 1300 Comparison Matrix**

| | 1500 | 1400 | 1300 |
|---|---|---|---|
| **Product Photos** |  |  |  |
| **Architecture** | Centralized WLAN architecture. Uses wireless controllers (2006 and 4400 series controllers). Up to 24 controllers in a cluster. | Distributed WLAN architecture (Aironet autonomous). | Distributed WLAN (Aironet autonomous). Note: In future release will also be supported on the centralized architecture. |
| ***Topologies Supported*** | Wireless mesh, point-to-point bridging, or point-to-multipoint bridging. Purpose built for wireless mesh solution. | Point-to-point and point-to-multipoint bridging. | Bridging, access point, workgroup bridge. Can support bridging and access point mode simultaneously. |

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|---|---|---|---|
| **Application & Positioning** | Wireless Mesh - most effective solution for max coverage for WIFI client access over a large area such as a metropolitan area. Using wireless to communicate between nodes, the Cisco Aironet 1500 Series eliminates the need to provision a wired network connection to each mesh access point. | Bridging - used for building to building or (LAN to LAN) connectivity as a cost effective alternative to leased lines. | Bridging - building to building (LAN to LAN) connectivity as a cost effective alternative for leased lines. Access Point - also deployed as a rugged outdoor access point. When used for WIFI client access, most appropriate for wireless hotspot coverage (no dedicated wireless backhaul radio/antenna like 1500 wireless mesh AP). |
| **Adaptive Wireless Path Protocol (Wireless Mesh)** | Yes | No. | No. |
| **802.11 WIFI wireless client support** | Yes, 802.11G/B. | No. Does not support WIFI wireless clients. | Yes, 802.11G/B. Supports both bridging for LAN to LAN connectivity, and also supports wireless client access. However, only has one antenna for both wireless connections which can present some challenges in coverage, either for wireless clients or for the bridged wireless connection. |
| **802.11 Technology** | 802.11G/B for client access and 802.11A for wireless backhaul. | 802.11A. | 802.11G/B. |
| **Radios** | Multiple radios: 2.4 GHz, 5GHz, (4.9 GHz future). | Single 5 GHz radio. | Single 2.4 GHz radio |
| **Integrated Antenna Support** | No, requires external antennae. | AIR-BR1410A-x-K9 - model for integrated patch antenna | AIR-BR1310G-A-K9 - model for integrated antenna. |
| **External Antenna Support** | Requires external antennae. One antenna dedicated for wireless client access, and one antenna dedicated for wireless backhaul to the wireless mesh network, providing optimal configuration for a wireless mesh solution. "N" Type connector (1 for backhaul and 1 for local WIFI client access). | AIR-BR1410A-x-K9-N - model for external antenna option. One "N" Type connector for single external antenna. | AIR-BR1310G-x-k9-R: Two RP-TNC type connectors for external antennae (can use 2 antenna for diversity for one radio). Having a single antenna can present challenges when using for both bridging wireless backhaul and wireless client access simultaneously. Alternately, can co-locate two wireless devices such as two 1300s, one acting bridge mode for wireless backhaul, one in AP mode for WIFI client access). |

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| **Antennas Supported** | AIR-ANT2455V-N 2.4 GHz, 5.5 dBi Omnidirectional Antenna with N connector, AIR-ANT5175V-N 5 GHz, 7.5 dBi Omnidirectional Antenna with N connector, AIR-ANT58G10SSA-N 5.8 GHz, 9.5 dBi Sector Antenna with N connector. Higher gain antennas can be provisioned from 3rd party vendors. Additional Directional and 4.9 GHz antennas coming. | Supports any 5GHz antenna in price list with "AIR-ANT58" in part number. AIR-ANT58G28SDA-N Aironet 5.8 GHz 28 dBi dish antenna, AIR-ANT58G10SSA-N Aironet 5.8 GHz 9.5 dBi sector antenna, AIR-ANT58G9VOA-N Aironet 5.8 GHz 9 dBi omni antenna. | AIR-ANT2414S-R Cisco Aironet 2.4 GHz, 14 dBi sector antenna, AIR-ANT2506 2.4 GHz, 5.2 dBi omnidirectional mast mount, AIR-ANT24120 2.4 GHz 12dBi omnidirectional mast mount, AIR-ANT1949 2.4 GHz 13.5dBi Yagi, AIR-ANT2410Y-R 2.4 GHz 10dBi Yagi, AIR-ANT3338 2.4 GHz 21dBi dish, AIR-ANT3549 2.4 GHz 9dBi Patch. |
| **Antenna Alignment LEDs** | Not available. | Alignment LEDs which provide you the RSSI with there blinking patterns. 1400 also has BNC port to measure the DC voltage corresponding to the RSSI you are receiving. 1400 provides more robust alignment technique. | Alignment LEDs which provide you the RSSI with there blinking patterns. |
| **Bidirectional Amplifiers** | Yes for increase transmit and receive power. | No. | No. |
| **Transmit power** | 28dBm to a 17 dBi antenna in the 5Ghz space and 24 dBm power to a 8dBi antenna in the 2.4 GHz space. Note power/gain varies by country (regulations). | 24 dBm power to a 24dBi gain for a range up to 23 miles in the 5GHz space. Note power/gain varies by country (regulations). | 20 dBm power to a 21 dBi gain for a range up to 14 miles. Note power/gain varies by country (regulations). |
| **Mounting Options** | Ships with universal mounting plate. The universal mounting plate allows users to install the access point on a flat surface, such as a wall. Optional AIR-ACCPMK1500 Pole-mount kit is used to mount the access point to a pole. It is used along with the universal mounting plate, which ships with the access point. | Roof/Wall Mount Kit for mounting onto flat surfaces, such as roofs and walls, while providing full azimuth and elevation articulation. AIR-ACCRWM1400 Cisco Aironet 1400 Roof/Wall Mount Kit. | A Roof Mount Kit is available for use with the Cisco Aironet 1300 Series Outdoor Access Point/Bridge (integrated antenna and connectorized versions). A Wall Mount Kit is available for use with the Cisco Aironet 1300 Series Outdoor Access Point /Bridge with RP-TNC Type Connector. The Wall Mount Kit is for indoor use only. AIR-ACCWAMK1300= 1300 Series Wall Mount Kit for use with AIR-BR1310G-x-K9-R, AIR-ACCRMK1300= 1300 Series Roof Mount Kit for use with AIR-BR1310G-x-K9. |

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| **Power Options** | PoE, Street Light Tap, Mil-spec AC plug. Power supplied at the top of streetlight poles is AC power. Use the Cisco Aironet 1500 Series Streetlight Power Tap to plug the access point into this power source. AIR-PWR-ST-LT-TAP 1500 Series Streetlight Power Tap, 105-260 VAC, When a Cisco Aironet 1500 Series access point is installed on the roof of a building, power can be supplied over Ethernet using a power injector. The power injector converts AC power into DC power and sends it along with the Ethernet signal to the access point. AIR-PWRINJ1500 1500 Series Power Injector, In 100–240VAC, Out 48 VDC. | PoE using included power injector. | PoE using included power injector. |
| **Software Image** | LWAPP-based. | IOS. | IOS; LWAPP in future release (Mar '06) |
| **Configuration** | Self configuring/Healing, Zero touch configuration. | Autonomous APs require individual configuration. | Autonomous APs require individual configuration. |
| **L2, L3 Client Mobility** | Yes, using CCKM or PKC. | No. | L2, for L3 requires WDS blade. |
| **Management** | Web based GUI based centralized management using wireless controller and the WCS. | Web based GUI, CLI, SNMP, and optional Wireless LAN Solution Engine (WLSE). | Web based GUI, CLI, SNMP, and optional Wireless LAN Solution Engine (WLSE). |
| **Outdoor use** | Yes | Yes | Yes. |
| **Enclosure** | Weatherized IP66, NEMA4 compliant. | NEMA. | Weatherized IP56, NEMA4. |
| **MBSSID supported** | 16 | 16 | 16 |
| **VLAN support** | 256 (different architecture than 1400, 1300) | 16 | 16 |
| **High Availability** | Access points automatically failover to the next controller in the event the primary controller is not available. PAPs use Adaptive Wireless Path Protocol to find the best route to the RAP in case of a PAP failure in the mesh. | Redundant 1400. | Redundant 1300s. |
| **Operating Temperature** | from -30 to +55 degC (future -40 degrees C will be supported) | from -30 to +55 degC | from -30 to +55 degC |

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|---|---|---|---|
| **Nodes** | One Roof top AP (RAP) supports 32 Pole top Aps (PAP). (20 recommended) | N/A, not mesh topology | N/A, not mesh topology |
| **Hops** | Indoor: Code supports 8 hops -- 3-4 hops are recommended. Outdoor: 1 Hop | 1 | 1 |
| **Distance for links** | At 5 GHz - RAP to PAP distance is 1000 ft to 4000 ft. PAP to PAP distance 500 ft to 1000 ft. At 2.4GHz PAP to client distances is 300ft to 500ft. | Up to 8 miles at 54 Mbps. Lower data rates can support many more miles. Use bridge range calculator tool for details: http://www.cisco.com/application/vnd.ms-excel/en/us/guest/products/ps458/c1225/ccmigration_09186a00800a912a.xls | Up to 2 miles at 54 Mbps . Lower data rates can support many more miles. Use bridge range calculator tool for details: http://www.cisco.com/application/vnd.ms-excel/en/us/guest/products/ps458/c1225/ccmigration_09186a00800a912a.xls |
| **Number of APs/Square Mile** | 15 to 25 depending on environment. 15 for a relatively flat terrain with no major obstructions, 25 APs in a city like NYC. | Not a wireless mesh solution…depends on antenna, environment, etc. | Not a wireless mesh solution…depends on antenna, environment, etc. |
| **Security** | Wi-Fi Client 802.11i/WPA2, 802.1X, Pre-Key, TKIP, MIC, AES. Hardware based AES backhaul traffic. X509 certificates to protect against imitation AP's. | 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys. Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits WPA TKIP and Cisco TKIP enhancements: key hashing (per packet keying), Message Integrity Check (MIC), and broadcast key rotation. | Security Access Point role: authentication: 802.1X support including LEAP, PEAP-GTC, PEAP-MSCHAPv2, EAP Message Digest 5 (EAP MD5), EAP-TLS, EAP-TTLS, EAP-SIM, and EAP-FAST to yield mutual authentication and dynamic per-user, per-session encryption keys. Encryption : • WPA: Cisco TKIP or WPA TKIP; key hashing (per-packet keying), MIC and broadcast key rotation • WPA2: AES (802.11i). Security bridge role: • Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys. Encryption: • Cisco TKIP or WPA TKIP; key hashing (per-packet keying), Message Integrity Check (MIC) and broadcast key rotation• AES (802.11i). |
| **Mode Button** | No. | Yes, Mode button on the power Injector. One can reset the bridge to the default settings. | No Mode Button, as console port is available. |
| **Console Port** | No, not for the Public use. | No. | Yes. |
| **Unique features** | Wireless Mesh, dual radios and dual antennae (client and backhaul). Centralized architecture supports Dynamic Channel Assignment, Dynamic Power Optimization, Identify/Avoid RF Interference, Identify and Eliminate Coverage Holes (Future), Optimize Coverage Area. | Longer distances than 1300 at higher rates for bridging applications. | In addition to bridge and AP mode, can also operate as workgroup bridge. Wide range of antennae support. |

| Wireless 1500, 1400, 1300 Comparison Matrix | | | |
|---|---|---|---|
| **Price USD (not including options such as antenna, accessories, etc.). Check Price List for current pricing details.** | $3,999 | $4,999 | $1,299 |