

## Cisco 521 Wireless Express Access Point

The Cisco® 521 Wireless Express Access Point is a single-band 802.11g access point that features business-class management, security, and scalability. This access point offers high-performance wireless connectivity in carpeted offices and similar environments.

The Cisco Mobility Express Solution brings together the 521 Access Point and the Cisco 500 Series Wireless Express Mobility Controller to provide a flexible, cost effective wireless solution specifically designed to meet the needs of small and medium-sized businesses (SMBs). The Mobility Express Solution aligns with the Cisco Smart Business Communication System—a unified communications solution for SMBs that provides voice, data, video, security and wireless capabilities while integrating with existing desktop applications like calendar, e-mail and CRM to provide a complete solution.

As part of this solution, the Cisco 521 Access Point uniquely addresses the diverse requirements of small and medium-sized businesses (SMBs) by offering the versatility of operating either in standalone mode, or in controller-based mode with the Cisco 500 Series Wireless Express Controller.

- Standalone mode: Access points are directly connected to the wired infrastructure and provide reliable high-speed wireless connectivity to users in the area they cover. Configuration and management is performed locally at the individual access point level.
- Controller-based mode: Access points associate with a Cisco 500 Series Wireless Express Controller to provide wireless connectivity and comprehensive monitoring of the airspace. The controller streamlines and manages the configuration of all connected access points through a single interface, instead of requiring configuration of each unit separately.

The Cisco 521 Access Point delivers optimal value for carpeted offices and similar environments. Built-in antennas provide omni-directional coverage specifically designed for today's open workspaces. A multipurpose mounting bracket easily secures Cisco 521 Access Points to ceilings and walls. With an unobtrusive design, the access points are aesthetically appealing and blend into their surrounding environment. For maximum concealment, they may be placed above ceilings or suspended ceilings. The access point's UL 2043 rating allows it to be placed above ceilings in plenum areas regulated by municipal fire codes. Offered at a competitive price point and optimized for easy installation and operation, the Cisco 521 Access Point helps organizations attain a lower total cost of ownership.

**Figure 1.** Cisco 521 Wireless Express Access Point

SMB-class access point with integrated antennas for easy deployment in carpeted offices and similar RF environments.

## Applications

In offices and similarly open environments, Cisco 521 Wireless Express Access Points may be installed on the ceiling to provide users with continuous coverage as they roam throughout a facility. In school buildings and similar facilities, the access points may be installed on the ceiling of each room and hallway to provide users with full coverage and high network availability. In areas where a ceiling installation may not be practical, such as retail hotspots or similar small facilities, the access points can be mounted simply and securely on walls for complete coverage with minimal installation cost.

## Features and Benefits

Table 1 lists features and benefits of the Cisco 521 Wireless Express Access Point

**Table 1.** Features and Benefits of the Cisco 521 Wireless Express Access Point

Feature	Benefit
<b>802.11g radio</b>	<ul style="list-style-type: none"> <li>Provides 54 Mbps of capacity and backward compatibility with legacy 802.11b clients.</li> </ul>
<b>Industry-leading radio design</b>	<ul style="list-style-type: none"> <li>Provides robust signals to long distances.</li> <li>Mitigates the effects of multi-path signal propagation for more consistent coverage.</li> </ul>
<b>Variable transmit power settings</b>	<ul style="list-style-type: none"> <li>Allows access point coverage to be tuned for differing requirements.</li> <li>Low-dBm setting supports closer spacing of access points in high-density deployments.</li> </ul>
<b>Integrated antennas</b>	<ul style="list-style-type: none"> <li>Complete system is deployable "out of the box" without external antennas.</li> <li>Provides omni-directional coverage for offices and similar RF environments.</li> </ul>
<b>Hardware-assisted AES encryption</b>	<ul style="list-style-type: none"> <li>Provides high security without performance degradation.</li> </ul>
<b>IEEE 802.11i-compliant; WPA2 and WPA-certified</b>	<ul style="list-style-type: none"> <li>Helps to ensure interoperable security with wireless LAN client devices from other manufacturers.</li> </ul>
<b>Low-profile design</b>	<ul style="list-style-type: none"> <li>Unobtrusive design blends into environment.</li> </ul>
<b>Multipurpose and lockable mounting bracket</b>	<ul style="list-style-type: none"> <li>Provides greater flexibility and ease of installation to walls, ceilings, and suspended ceiling railways.</li> <li>Accommodates standard padlock for theft deterrence.</li> </ul>
<b>Inline power support (IEEE 802.3af and Cisco Inline Power)</b>	<ul style="list-style-type: none"> <li>Provides an interoperable alternative to AC power.</li> <li>Simplifies deployment by allowing power to be supplied over an Ethernet cable.</li> <li>Compatible with 802.3af-compliant power sources.</li> </ul>

## Product Specifications

Table 2 lists the product specifications for the Cisco 521 Wireless Express Access Point.

**Table 2.** Product Specifications for the Cisco 521 Wireless Express Access Point

Item	Specification
<b>Part number</b>	<ul style="list-style-type: none"> <li>• AIR-AP521G-x-K9 (Cisco IOS® Software)</li> <li>• AIR-LAP521G-x-K9 (Cisco Unified Wireless Network Software)</li> <li>• Note: The Cisco 521 may be ordered with Cisco IOS Software to operate as a standalone access point or with Cisco Unified Wireless Network Software using Lightweight Access Point Protocol (LWAPP). When the Cisco 521 is operating as a lightweight access point, a wireless LAN controller is required.</li> <li>• Regulatory domains: (x = regulatory domain)</li> <li>• A = FCC</li> <li>• E = ETSI</li> <li>• P = Japan2</li> <li>• 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, please visit: <a href="http://www.cisco.com/go/aironet/compliance">http://www.cisco.com/go/aironet/compliance</a></li> <li>• Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List</li> </ul>
<b>Software</b>	<ul style="list-style-type: none"> <li>• Cisco IOS Software Release 1.0 or later (standalone);</li> <li>• Cisco Unified Wireless Network Software Release 1.0 or later (controller-based)</li> </ul>
<b>Data rates supported</b>	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
<b>Network standard</b>	IEEE 802.11b and 802.11g
<b>Uplink</b>	Autosensing 802.3 10/100BASE-T Ethernet
<b>Frequency band and operating channels</b>	<p><b>Americas (FCC)—A:</b></p> <ul style="list-style-type: none"> <li>• 2.412 to 2.462 GHz; 11 channels</li> </ul> <p><b>Europe (ETSI)—E:</b></p> <ul style="list-style-type: none"> <li>• 2.412 to 2.472 GHz; 13 channels</li> </ul> <p><b>Japan-P (TELEC 2 (Japan2) Cnfg)</b></p> <ul style="list-style-type: none"> <li>• 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM)</li> </ul>
<b>Nonoverlapping channels</b>	802.11b/g: 3
<b>Receive sensitivity (typical)</b>	<p><b>802.11g:</b></p> <ul style="list-style-type: none"> <li>• 1 Mbps: –93 dBm</li> <li>• 2 Mbps: –91 dBm</li> <li>• 5.5 Mbps: –88 dBm</li> <li>• 6 Mbps: –86 dBm</li> <li>• 9 Mbps: –85 dBm</li> <li>• 11 Mbps: –85 dBm</li> <li>• 12 Mbps: –84 dBm</li> <li>• 18 Mbps: –83 dBm</li> <li>• 24 Mbps: –79 dBm</li> <li>• 36 Mbps: –77 dBm</li> <li>• 48 Mbps: –72 dBm</li> <li>• 54 Mbps: –70 dBm</li> </ul>
<b>Available transmit power settings (maximum power setting will vary by channel and according to individual country regulations)</b>	<p><b>802.11b:</b></p> <p>Complementary Code Keying (CCK):</p> <ul style="list-style-type: none"> <li>• 20 dBm (100 mW)</li> <li>• 17 dBm (50 mW)</li> <li>• 14 dBm (25 mW)</li> <li>• 11 dBm (12 mW)</li> <li>• 8 dBm (6 mW)</li> <li>• 5 dBm (3 mW)</li> <li>• 2 dBm (2 mW)</li> </ul> <p><b>802.11g:</b></p> <p>OFDM:</p> <ul style="list-style-type: none"> <li>• 17 dBm (50 mW)</li> <li>• 14 dBm (25 mW)</li> <li>• 11 dBm (12 mW)</li> <li>• 8 dBm (6 mW)</li> <li>• 5 dBm (3 mW)</li> <li>• 2 dBm (2 mW)</li> <li>• –1 dBm (1 mW)</li> </ul>

Item	Specification	
	<ul style="list-style-type: none"> <li>• -1 dBm (1 mW)</li> </ul>	
<b>Range</b>	<p>Indoor (distance across open office environment)</p> <p><b>802.11g:</b></p> <ul style="list-style-type: none"> <li>• 100 ft (30 m) @ 54 Mbps</li> <li>• 175 ft (53 m) @ 48 Mbps</li> <li>• 250 ft (76 m) @ 36 Mbps</li> <li>• 275 ft (84 m) @ 24 Mbps</li> <li>• 325 ft (100 m) @ 18 Mbps</li> <li>• 350 ft (107 m) @ 12 Mbps</li> <li>• 360 ft (110 m) @ 11 Mbps</li> <li>• 375 ft (114 m) @ 9 Mbps</li> <li>• 400 ft (122 m) @ 6 Mbps</li> <li>• 420 ft (128 m) @ 5.5 Mbps</li> <li>• 440 ft (134 m) @ 2 Mbps</li> <li>• 450 ft (137 m) @ 1 Mbps</li> </ul>	<p>Outdoor</p> <p><b>802.11g:</b></p> <ul style="list-style-type: none"> <li>• 120 ft (37 m) @ 54 Mbps</li> <li>• 350 ft (107 m) @ 48 Mbps</li> <li>• 550 ft (168 m) @ 36 Mbps</li> <li>• 650 ft (198 m) @ 24 Mbps</li> <li>• 750 ft (229 m) @ 18 Mbps</li> <li>• 800 ft (244 m) @ 12 Mbps</li> <li>• 820 ft (250 m) @ 11 Mbps</li> <li>• 875 ft (267 m) @ 9 Mbps</li> <li>• 900 ft (274 m) @ 6 Mbps</li> <li>• 910 ft (277 m) @ 5.5 Mbps</li> <li>• 940 ft (287 m) @ 2 Mbps</li> <li>• 950 ft (290 m) @ 1 Mbps</li> </ul>
<b>Compliance</b>	<p>Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.</p> <p><b>Standards</b></p> <ul style="list-style-type: none"> <li>• Safety <ul style="list-style-type: none"> <li>◦ UL 60950-1</li> <li>◦ CAN/CSA-C22.2 No. 60950-1</li> <li>◦ UL 2043</li> <li>◦ IEC 60950-1</li> <li>◦ EN 60950-1</li> <li>◦ NIST FIPS 140-2 Level 2 validation</li> </ul> </li> <li>• Radio Approvals <ul style="list-style-type: none"> <li>◦ FCC Part 15.247, 15.407</li> <li>◦ RSS-210 (Canada)</li> <li>◦ EN 300.328, EN 301.893 (Europe)</li> <li>◦ ARIB-STD 33 (Japan)</li> <li>◦ ARIB-STD 66 (Japan)</li> <li>◦ AS/NZS 4268.2003 (Australia and New Zealand)</li> </ul> </li> <li>• EMI and Susceptibility (Class B) <ul style="list-style-type: none"> <li>◦ FCC Part 15.107 and 15.109</li> <li>◦ ICES-003 (Canada)</li> <li>◦ VCCI (Japan)</li> <li>◦ EN 301.489-1 and -17 (Europe)</li> </ul> </li> <li>• Security <ul style="list-style-type: none"> <li>◦ 802.11i, WPA2, WPA</li> <li>◦ 802.1X</li> <li>◦ AES, TKIP</li> <li>◦ FIPS 140-2 Pre-Validation List</li> <li>◦ Common Criteria (when running Cisco IOS Software)</li> </ul> </li> <li>• Other <ul style="list-style-type: none"> <li>◦ IEEE 802.11g</li> <li>◦ FCC Bulletin OET-65C</li> <li>◦ RSS-102</li> </ul> </li> </ul>	
<b>Antennas</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz</li> <li>• Gain: 3.0 dBi</li> </ul>	

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Item	Specification
	<ul style="list-style-type: none"><li>• Horizontal beam width: 360°</li></ul>

Item	Specification																														
<b>Security</b>	<b>Standalone Access Point</b>																														
	<table border="1"> <thead> <tr> <th>Security</th> <th>Encryption</th> <th>Authentication</th> </tr> </thead> <tbody> <tr> <td>No security</td> <td>None</td> <td>Open</td> </tr> <tr> <td>WEP</td> <td>WEP</td> <td>Open</td> </tr> <tr> <td>EAP</td> <td>Dynamic-WEP</td> <td>Open-EAP Network-EAP</td> </tr> <tr> <td>WPA</td> <td>TKIP</td> <td>Open-EAP Network-EAP</td> </tr> <tr> <td>WPA-PSK</td> <td>TKIP</td> <td>WPA-PSK</td> </tr> <tr> <td>WPA2</td> <td>AES CCMP</td> <td>Open-EAP Network-EAP</td> </tr> <tr> <td>WPA2-PSK</td> <td>AES CCMP</td> <td>WPA-PSK</td> </tr> <tr> <td>MAC</td> <td>None</td> <td>Open, MAC</td> </tr> <tr> <td>MAC &amp; EAP</td> <td>Dynamic WEP</td> <td>Open, MAC, Network-EAP</td> </tr> </tbody> </table>	Security	Encryption	Authentication	No security	None	Open	WEP	WEP	Open	EAP	Dynamic-WEP	Open-EAP Network-EAP	WPA	TKIP	Open-EAP Network-EAP	WPA-PSK	TKIP	WPA-PSK	WPA2	AES CCMP	Open-EAP Network-EAP	WPA2-PSK	AES CCMP	WPA-PSK	MAC	None	Open, MAC	MAC & EAP	Dynamic WEP	Open, MAC, Network-EAP
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<b>Status LEDs</b>	<p><b>External:</b></p> <ul style="list-style-type: none"> <li>Status LED indicates operating state, association status, error/warning condition, boot sequence, and maintenance status</li> </ul> <p><b>Internal:</b></p> <ul style="list-style-type: none"> <li>Ethernet LED indicates activity over the Ethernet, status Radio LED indicates activity over the radios, status</li> </ul>																														
<b>Dimensions (H x W x D)</b>	7.5 x 7.5 x 1.3 in. (19.1 x 19.1 x 3.3 cm)																														
<b>Weight</b>	1.5 lb (0.67 kg)																														
<b>Environmental</b>	<ul style="list-style-type: none"> <li>32 to 104°F (0 to 40°C)</li> <li>10 to 90 percent humidity (noncondensing)</li> </ul>																														
<b>System memory</b>	<ul style="list-style-type: none"> <li>32 MB RAM</li> <li>16 MB flash</li> </ul>																														
<b>Input power requirements</b>	<ul style="list-style-type: none"> <li>100 to 240 VAC; 50 to 60 Hz (power supply)</li> <li>36 to 57 VDC (device)</li> </ul>																														
<b>Power draw</b>	12.2W maximum																														
<b>Warranty</b>	90 days																														
<b>Wi-Fi certification</b>																															

