

cnPilot™ e500, e501S, e502S Outdoor Wi-Fi Access Points

Omni and Sector Outdoor Wi-Fi Access Point

cnPilot™ e500, e501S and e502S are medium- to high-density outdoor Wi-Fi access points (AP) with a multi-functional design. These APs have internal antennas and an integrated mounting bracket to simplify installation. Perfect for a variety of applications, from omni-directional coverage to long-range Wi-Fi or high-interference outdoor- where a directional RF beam is required. The e501S and e502S have a 23 dBm front-to-back signal delta for excellent isolation in high-interference environments.

QUICK LOOK :

| e500 | e501S | e502S |
|--|---|--|
| 802.11 a/b/g/n/ac | | |
| 5 GHz (2x2), 2.4 GHz (2x2) | | |
| IP67 rated housing, UV protection, LTE Filter | | |
| -30°C to 60°C | | |
| 15.4 W power out on one gigabit port | | |
| 6 dBi (5 GHz) gain omni antenna | 13 dBi (5 GHz) gain sector antenna, 1200 | 17 dBi (5 GHz) gain sector antenna, 300 |



CLOUD-MANAGED ACCESS

All cnPilot APs are managed by cnMaestro from the cloud, an on-premises VM or a private datacenter. cnMaestro provides a single-pane-of-glass dashboard for Wi-Fi, Ethernet, fixed wireless broadband and service provider home routers.

- Zero-touch onboarding
- Inventory reports, mass configuration and upgrade
- Dashboard views with alarms and key performance metrics
- Remote troubleshooting tools
- Hierarchical device organization
- Cloud-managed guest portal with social login, vouchers, rate, time and throughput limits

cnMaestro Essential cloud management is included at no additional cost. There are no setup fees, licenses or recurring costs. cnMaestro includes detailed network statistics, channel utilization graphs, and integrated remote troubleshooting tools to ensure service is always on.

MULTI-FUNCTIONAL OUTDOOR WI-FI

The cnPilot e500/501/502 series includes a second gigabit Ethernet port to power up and connect a Cambium fixed wireless subscriber module, or any powered Ethernet device. e501S and e502S features Cambium engineered high gain sector antenna array that projects RF energy in a 1,200 or 300 arc out the front of the AP, with ~ -10dB in the remaining 600 providing a full 1,800 coverage, this is ideal for outdoor Wi-Fi on a warehouse, retail store, anywhere the AP is installed on the outside of the building. e501S features power out on one gigabit Ethernet port to connect any IP- and PoE-powered device such as an IP camera, Cambium fixed wireless subscriber module, or another Wi-Fi AP. Additionally, the e501S includes enterprise features designed to improve reliable connections. Controller-less roaming, dynamic channel selection, automatic transmit power control, band steering, multi-hop MESH with alternating 2.4 GHz and 5 GHz bands are all features of the cnPilot 500/501/502 series.

Integrated troubleshooting tools provide remote access for packet capture, client statistics, operational and RF statistics, and RF scanning for interference, channel utilization, and noise floor scan.

cnPilot™ e500, e501S, e502S Outdoor Access Points

Access Point Specifications

| | |
|-------------|-------------------------|
| FCC | Ch 1-11, 36-48, 149-165 |
| ISED | Ch 1-11, 36-48, 149-165 |
| ETSI | Ch 1-13, 32-48, 149-165 |
| ROW | Ch 1-13, 32-48, 159-169 |

| | |
|---------------|---|
| Radios | 1 x 5 GHz radio (802.11 a/n/ac), 2x2 1 x 2.4 GHz (802.11 b/g/n), 2x2 SU-MIMO / MU-MIMO: 2 streams |
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|----------------------|---|
| SSID Security | WPA2 (802.11i), WPA2 Enterprise (802.1x/EAP), WPA PSK, Open |
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|---------------------|--|
| Max PHY Rate | 2.4 GHz radio: 300 Mbps 5 GHz radio: 867 Mbps |
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|-----------------|--|
| Ethernet | Two IEEE gigabit Ethernet auto sensing |
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| Antenna | Internal sector antenna 10.5 dBi (2.4 GHz) 13 dBi (5 GHz) |
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| Max EIRP | 36 dBm (2.4 GHz) 36 dBm (5 GHz) (EIRP limited by country regulations) |
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| WLAN | 256 clients, 16 SSIDs WPA-TKIP, WPA2 AES, 802.1x, 802.11w PMF |
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| Power | 802.3af or 802.3at powered device Typical load: 8 W, Max: 12.85 W 25 W when connected to full 802.3af load on GE 2 |
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| Dimensions | 300 mm x 204 mm x 65 mm (11.81 in x 8.03 in x 2.56 in) |
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| Weight | 881 g (1.94 lbs) |
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| Security | Kensington Key Slot |
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| LED | Two dual-color LED |
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| Ambient Operation Temperature | -30°C to 60°C |
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|----------------------------|---------------|
| Storage Temperature | -40°C to 70°C |
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| Humidity | 95% RH non-condensing |
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|------------------------|--------|
| LTE Band Filter | 38, 40 |
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| Mount Options | Integrated pole 38 mm and 76 mm (1.5 in and 2.99 in), wall mount |
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|------------------------------------|--|
| Certifications (compliance) | Wi-Fi Alliance 802.11 a/b/g/n/ac, Passpoint 2.0FCC, ETSI, CE, EN 60601-1-2, IEC60950, UI2043 |
|------------------------------------|--|

Network Specifications

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|----------------------------------|---|
| Authentication Encryption | 802.1x EAP-SIM/AKA/AKA'/FAST, EAP-PEAP, EAP-TTLS, EAP-TLS/MSCHAPv2, PEAPv0/PEAPv1 MAC authentication to local database (on AP, on Controller) or external RADIUS. MAC auth fallback to guest portal |
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|-----------------------|----------------------------------|
| Scheduled WLAN | On/off by day, week, time of day |
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|------------|-----------------------------------|
| QoS | 802.11e/WMM QoS. DSCP/ToS mapping |
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| VLAN | 802.11Q, max 4096 |
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| Fast Roaming | 802.11r, OKC, Enhanced roaming |
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| Mesh | Multi-hop (3), either band |
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| Channel Selection | Auto RF: Manual, or automatic |
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| Auto TX Power | Auto RF: automatically adjust max transmit power |
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| Network | NAT, NAT logging firewall, DOS protection, L2/L3/DNS ACL, DHCP server, DHCP Relay option 82 LLDP, IGMP v1, v2, v3 VLAN Pooling, RADIUS attribute VID VLAN per SSID, per user Integrated WIDS (wireless intrusion detection) |
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| Band Steer Load Balance | Yes |
|--------------------------------|-----|

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|---------------|---------------------|
| Tunnel | L2TP, L2oGRE, PPPoE |
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| Network and RF Management Tools | Out-of-band RF spectrum analysis, radio self test network assurance, RF monitor with chn/noise/interference, wired and wireless remote packet capture, auto logging, ZapD performance tool, rogue AP detection, ultralow power mode, honeypot control |
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cnPilot™ e500, e501S, e502S Outdoor Access Points

Management

Interfaces HTTP / HTTPS web interface, SSL, Telnet
SNMP V1, V2, V3
Syslog, SNMP traps, NTP

Deployment cnMaestro Cloud, cnMaestro on-premises,
Standalone AP

Services Monetized, cloud managed guest portal with
design tools

APIs RESTful management and statistics API
Presence location API
Splunk WebSocket integration, WebSocket
DNS, NAT, TCP connection log

Captive Portal Hosted on cnMaestro Controller
On-AP hosted guest portal
Redirect to HTTP/RADIUS external portal/
authentication
Active Directory integration, Google, Facebook,
Office 365 integration
Data rate, time duration, data throughput limit
Server DNS logging

Hotspot 2.0 Hotspot 2.0/Passpoint 2.0

Accounting RADIUS accounting, load balancing AAA
servers, Dynamic Authorization COA, DM

Service Availability Critical network resource monitor with automatic
shutdown maintains device connectivity

Standards

Wi-Fi Protocols 802.11AC 2x2:2:2
MIMO, VHT MCS rates, 256-QAM, HT20/40/80 MHz,
Transmit beamsteering, Airtime Fairness, Packet Aggregation (AMSDU, AMPDU) RIFS, STBC, LDPC
MIMO Power Save, MRC



e500



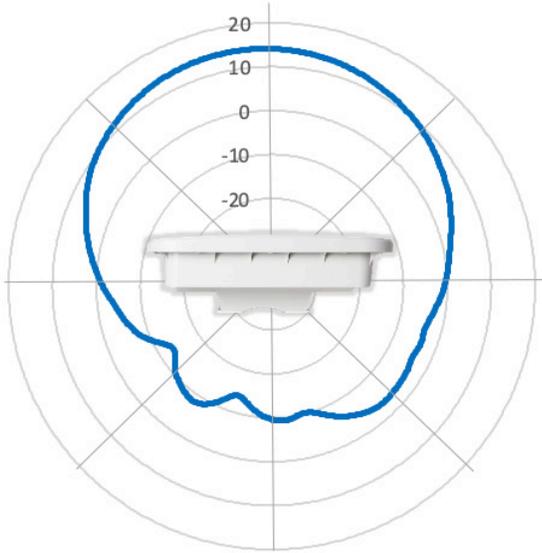
e501S



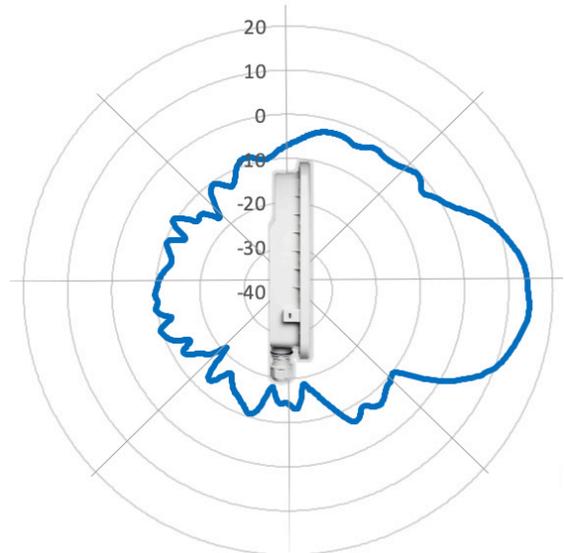
e502S

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Antenna Patterns - e501S

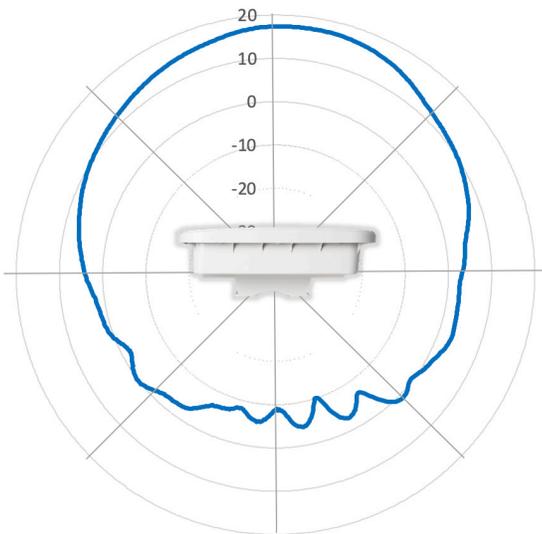


2.4 GHz Azimuth

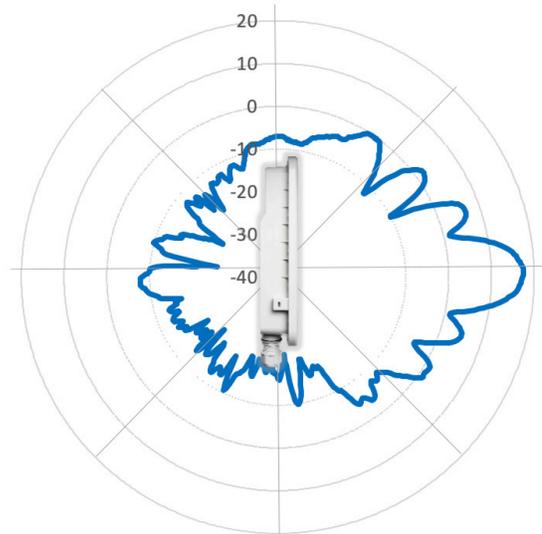


2.4 GHz Elevation

Max Gain (dB): 10
Scale: 10 dB/Div



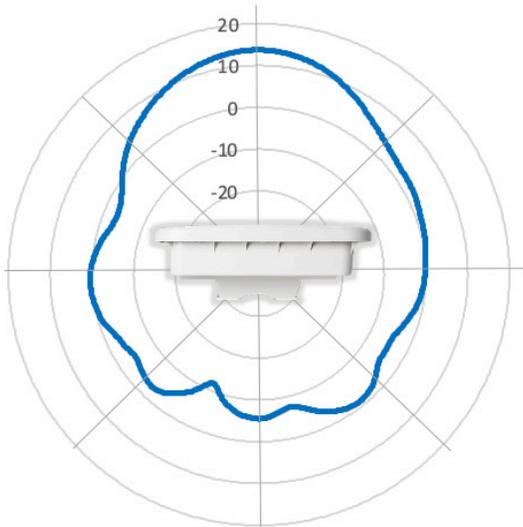
5 GHz Azimuth



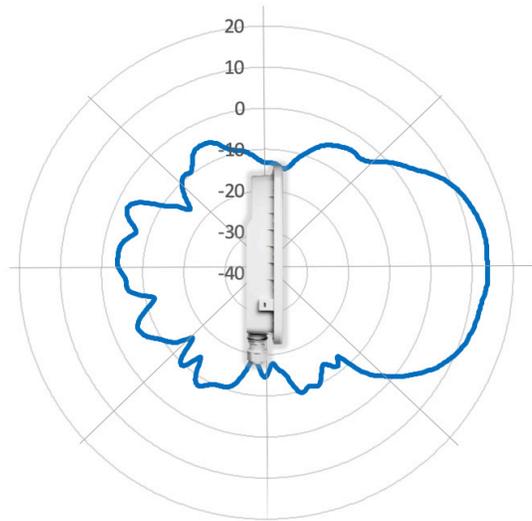
5 GHz Elevation

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Antenna Patterns - e502S

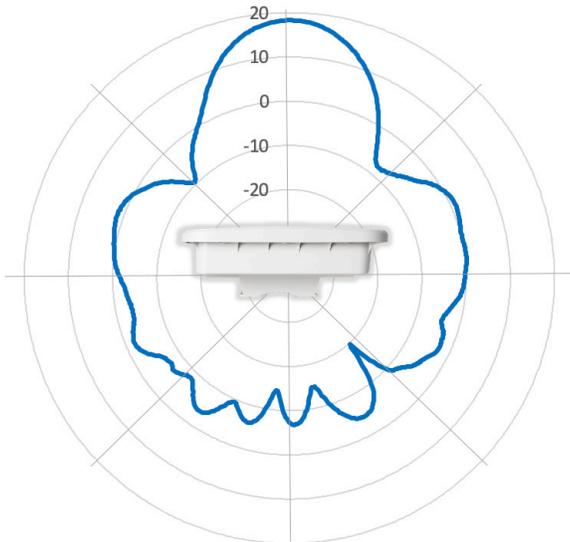


2.4 GHz Azimuth

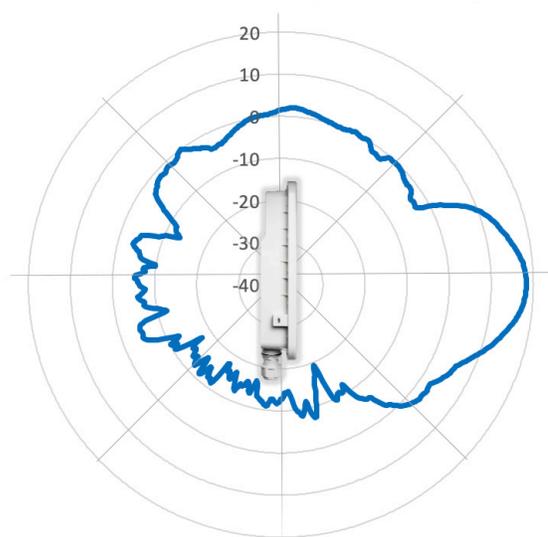


2.4 GHz Elevation

Max Gain (dB): 10
Scale: 10 dB/Div



5 GHz Azimuth



5 GHz Elevation

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e501S Ordering Information

| | |
|------------------------|--|
| PL-E501S000A-US | e501S (FCC) Outdoor, 2x2, Integrated gigabit 802.11ac AP with tilt brackets |
| PL-E501S000A-EU | e501S (EU) Outdoor, 2x2, Integrated gigabit 802.11ac AP with tilt brackets |
| PL-E501S000A-RW | e501S (ROW) Outdoor, 2x2, Integrated 802.11ac AP with tilt brackets |
| PL-E501SP00A-US | e501S (FCC) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector |
| PL-E501SP00A-EU | e501S (EU) Outdoor 120 sector 802.11ac AP WLAN AP with tilt bracket & PoE Injector |
| PL-E501SP00A-RW | e501S (ROW) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector, No country cord |
| PL-E501SPEUA-RW | e501S (ROW, EU cord) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector |
| PL-E501SPUSA-RW | e501S (ROW, US cord) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector |
| PL-E501SPUKA-EU | e501S (EU, UK cord) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector |
| PL-E501SPUKA-RW | e501S (ROW, UK cord) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector |
| PL-E501SPINA-RW | e501S (ROW, India cord) Outdoor 120 sector 802.11ac WLAN AP with tilt bracket & PoE Injector |
| PL-E501SPCNA-RW | e501S (ROW with China cord) Outdoor 120 sector 802.11ac WLAN AP with PoE Injector |
| PL-E501SPANARW | e501S (ROW with AUS/NZ cord) Outdoor 120 sector 802.11ac WLAN AP with PoE Injector |
| PL-E501SPBRA-RW | e501S (ROW with Brazil cord) Outdoor 120 sector 802.11ac WLAN AP with PoE Injector |
| PL-E501SPARA-RW | e501S (ROW with Argentina cord) Outdoor 120 sector 802.11ac WLAN AP with PoE Injector |

Consult your Cambium Networks distributor for individual country availability.

ABOUT CAMBIUM NETWORKS

Cambium Networks empowers millions of people with wireless connectivity worldwide. Its wireless portfolio is used by commercial and government network operators as well as broadband service providers to connect people, places and things. With a single network architecture spanning fixed wireless and Wi-Fi, Cambium Networks enables operators to achieve maximum performance with minimal spectrum. End-to-end cloud management transforms networks into dynamic environments that evolve to meet changing needs with minimal physical human intervention. Cambium Networks empowers a growing ecosystem of partners who design and deliver gigabit wireless solutions that just work.