cnPilot™ e505, e510, e700
Outdoor Wi-Fi Access Points
802.11ac Wave 2 Internal Antenna Outdoor Wi-Fi Access Points

**QUICK LOOK:**
Ideal for outdoor communities, public Wi-Fi or enterprise Wi-Fi, these omni-directional access points are tailored to low-, medium- and high-density applications. Each is designed with an integrated mounting bracket & internal antennas to make installation a snap and repeatable from one site to the next.

<table>
<thead>
<tr>
<th></th>
<th>e505</th>
<th>e510</th>
<th>e700</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11</td>
<td>a/b/g/n/ac Wave 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omni-directional antenna coverage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP67 rated housing, UV protection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 GHz (2x2), 2.4 GHz (2x2)</td>
<td>5 GHz (4x4), 2.4 GHz (2x2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-30ºC to 60ºC</td>
<td>-40ºC to 65ºC</td>
<td>-40ºC to 60ºC</td>
<td></td>
</tr>
<tr>
<td>Small size hides easily</td>
<td>Shock &amp; Vibration rail certified</td>
<td>15 W power out on GE2</td>
<td></td>
</tr>
</tbody>
</table>

**CLOUD-MANAGED ACCESS**
All cnPilot access points 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, license, or recurring costs. cnMaestro includes detailed network statistics, channel utilization graphs, and integrated remote troubleshooting tools to ensure service is always on.

**FLEXIBLE DESIGN FOR OUTDOOR ENTERPRISE WI-FI**
The e505 is designed for fast, discrete deployment of outdoor Wi-Fi, ideal for an aesthetically sensitive area like a hotel pool, or unobtrusive public and community Wi-Fi. The e505 has an omni coverage internal antenna with an integrated mounting bracket.

The e510 is rail shock and vibration certified, and includes extended surge and ESD protection. Additionally, an integrated LTE filter reduces impact from nearby LTE frequencies. Operating temperature spans -40ºC to 65ºC for a wide range of applications.

The e700 provides edge intelligent services and the 4x4 MU-MIMO antenna array to deliver those services. The dual-gigabit Ethernet ports support link aggregation (LAG) for higher throughput needs, or GE2 can be enabled to deliver 15 W of operating power for a Cambium subscriber module or any Ethernet- and PoE-powered device.
# cnPilot™ e505, e510, e700 Outdoor Access Points

## Access Point Specifications

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<thead>
<tr>
<th></th>
<th>e505</th>
<th>e510</th>
<th>e700</th>
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</thead>
<tbody>
<tr>
<td><strong>US- FCC</strong></td>
<td>Ch 1–11, 36–64, 100–140, 149–165</td>
<td>Ch 1–11, 36–64, 100–140, 149–165</td>
<td>Ch 1–11, 36–64, 100–140, 149–165</td>
</tr>
<tr>
<td><strong>ISED Canada</strong></td>
<td>Ch 1–11, 36–64, 100–116, 149–165</td>
<td>Ch 1–11, 36–64, 100–116, 149–165</td>
<td>Ch 1–11, 36–64, 100–116, 149–165</td>
</tr>
<tr>
<td><strong>EU- ETSI</strong></td>
<td>Ch 1–13, 36–64, 100–140</td>
<td>Ch 1–13, 36–64, 100–140</td>
<td>Ch 1–13, 36–64, 100–140</td>
</tr>
<tr>
<td><strong>ROW</strong></td>
<td>Ch 1–13, 36–64, 100–144, 149–173</td>
<td>Ch 1–13, 36–64, 100–144, 149–173</td>
<td>Ch 1–13, 36–64, 100–144, 149–173</td>
</tr>
</tbody>
</table>

*individual country limits apply*

### Radios

- 1 x 5 GHz radio (802.11 a/n/ac Wave 2), 2x2
- 1 x 2.4 GHz (802.11 b/g/n), 2x2
- SU-MIMO / MU-MIMO: 2 streams

### Wi-Fi

- 802.11 a/b/g/n/ac

### SSID Security

- WPA2 (802.11i), WPA2 Enterprise (802.1x/EAP), WPA PSK, Open

### Max PHY Rate

- **2.4 GHz radio**: 300 Mbps
- **5 GHz radio**: 867 Mbps

### Ethernet

- 1 IEEE Gigabit, auto sensing

### Antenna

- **2.4 GHz**: 5 dBi
- **5 GHz**: 5 dBi

### Max EIRP

- **2.4 GHz**: 26 dBm
- **5 GHz**: 26 dBm

*(EIRP limited by country regulations)*

### WLAN

- 100 clients, 32 SSIDs (16 per radio) WPA-TKIP, WPA2 AES, 802.1x, 802.11w PMF
- 256 clients, 32 SSIDs (16 per radio) WPA-TKIP, WPA2 AES, 802.1x, 802.11w PMF
- 512 clients, 32 SSIDs (16 per radio) WPA-TKIP, WPA2 AES, 802.1x, 802.11w PMF

### Power

- 802.3af or 802.3at powered device
  - Typical load: 8 W, Max: 12 W
- 802.3af or 802.3at powered device
  - Typical load: 10 W, Max: 12.95 W
- 802.3at powered device
  - Or 60 W Injector for max load with power-out
  - Typical load: 18 W, Max: 25 W
  - 40 W when connected to full 802.3af load on GE 2
  - Canopy power out or 802.3af

### Mounting

- Integrated pole, wall mount
## cnPilot™ e505, e510, e700 Outdoor Access Points

### Access Point Specifications cont’d

<table>
<thead>
<tr>
<th></th>
<th>e505</th>
<th>e510</th>
<th>e700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>227 mm x 130 mm x 70 mm (8.94 in x 5.12 in x 2.76 in)</td>
<td>290 mm x 208 mm x 78 mm (11.32 in x 8.19 in x 3.07 in)</td>
<td>315 mm x 215 mm x 66 mm (12.4 in x 8.46 in x 2.6 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>800 g (1.76 lbs)</td>
<td>1,100 g (2.43 lbs)</td>
<td>1,700g (3.75 lbs)</td>
</tr>
<tr>
<td><strong>LED</strong></td>
<td>Single Tri-color LED (amber, blue, green)</td>
<td>Single Tri-color LED (amber, blue, green)</td>
<td>Two single color status LED</td>
</tr>
<tr>
<td><strong>Physical Lock</strong></td>
<td>Kensington slot</td>
<td>Kensington slot</td>
<td>Kensington Key Slot</td>
</tr>
<tr>
<td><strong>Ambient op temp</strong></td>
<td>-30°C to 60°C</td>
<td>-40°C to 65°C</td>
<td>-40°C to 65°C</td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
<td>-40°C to 70°C</td>
<td>-40°C to 70°C</td>
<td>-40°C to 70°C</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>95% RH non-condensing</td>
<td>95% RH non-condensing</td>
<td>95% RH non-condensing</td>
</tr>
<tr>
<td><strong>Wind Resistance</strong></td>
<td>–</td>
<td>224 kph (139 mph)</td>
<td>–</td>
</tr>
<tr>
<td><strong>LTE Band filter</strong></td>
<td>–</td>
<td>38, 40</td>
<td>38, 40</td>
</tr>
<tr>
<td><strong>MTBF</strong></td>
<td>116k hours</td>
<td>420k hours</td>
<td>700k hours</td>
</tr>
<tr>
<td><strong>Overvoltage Protection</strong></td>
<td>–</td>
<td>–</td>
<td>Category 1</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>802.11u, Hotspot 2.0, FCC, ETSI, CE, EN 60601-1-2, IEC60950 UL2043</td>
<td>Wi-Fi Alliance 802.11a/b/g/n/ac, Passpoint 2.0, FCC, ETSI, CE, EN 60601-1-2, IEC60950 UL2043</td>
<td>Wi-Fi Alliance 802.11a/b/g/n/ac, Passpoint 2.0, FCC, ETSI, CE, EN 60601-1-2, IEC60950 UL2043</td>
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</table>
Cambium Networks cnMaestro uses a distributed intelligence architecture with a cloud-first cnMaestro management and edge-intelligent AP's that self-optimize for the RF environment. cnMaestro and cnPilot AP's provide automatic RF management and seamless roaming, with a cloud-first, multi-site management for up to 10,000 devices and hundreds of thousands of connected clients. cnMaestro delivers single-pane-of-glass management for Cambium Networks broadband fixed wireless, cnMatrix Ethernet switches, enterprise-grade Wi-Fi AP's and service provider residential routers.

**Interfaces**
- HTTP / HTTPS web interface, SSH, Telnet
- SNMP V1, V2, V3
- Syslog, SNMP traps, NTP

**Deployment**
- Monetized guest portal with design tools

**Services**
- Monetized, cloud managed guest portal with design tools

**Captive Portal**
- Portal features hosted on cnMaestro:
  - Design templates, customization tools
  - supports 3rd party external portal
  - RADIUS/LDAP/Click Through authentication
  - Active Directory, Google, Facebook, Office 365, OAuth 2.0
  - Data Rate/Throughput limits, Time duration

- Portal features hosted on the AP:
  - supports 3rd party external portal
  - RADIUS/LDAP/Click Through authentication
  - Data Rate/Throughput limits, Time duration

**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 SSID shutdown
cnPilot™ e505, e510, e700 Outdoor Access Points

### Network Specifications

<table>
<thead>
<tr>
<th>Authentication Encryption</th>
<th>802.1x EAP-SIM/AKA/AKA/FAST, EAP-PEAP, EAP-TTLS, EAP-TLS/MSCHAPv2, PEAPv0/PEAPv1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC authentication to local database (on AP, on Controller) or external RADIUS. MAC auth fallback to guest portal</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scheduled WLAN</th>
<th>On/off by day, week, time of day</th>
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<thead>
<tr>
<th>APIs</th>
<th>RESTful management and statistics API</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence location API</td>
<td>Splunk WebSocket integration, WebSocket</td>
</tr>
<tr>
<td>DNS, NAT, TCP connection log</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>QoS</th>
<th>802.11e/WMM QoS. DSCP/ToS mapping</th>
</tr>
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<tr>
<th>VLAN</th>
<th>802.11Q, max 4096</th>
</tr>
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<tr>
<th>Fast Roaming</th>
<th>802.11r, OKC, cnMaestro assisted roam</th>
</tr>
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<tr>
<th>Sticky Client</th>
<th>Enhanced roaming with thresholds</th>
</tr>
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<tr>
<th>Mesh</th>
<th>Multi-hop (2), either band</th>
</tr>
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<table>
<thead>
<tr>
<th>Channel Selection</th>
<th>Auto RF: Manual, or automatic</th>
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</table>

| Network                  | NAT, NAT logging firewall, DOS protection, L2/L3/DNS ACL, DHCP server, DHCP Relay option B2 LLDP, IGMP v1, v2 VLAN Pooling, RADIUS attribute VID VLAN per SSID, per user Integrated WIDS (wireless intrusion detection) |

<table>
<thead>
<tr>
<th>Band Steer Load Balance</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Tunnel</th>
<th>L2TPv2, L2GRE, PPPoE</th>
</tr>
</thead>
</table>

| Network and RF Management Tools | Out-of-band RF spectrum analysis, radio self test network assurance, RF monitor with channel/noise/interference, wired and wireless remote packet capture, ZapD performance tool, rogue, AP detection |

### Standards

<table>
<thead>
<tr>
<th>Wi-Fi Protocols</th>
<th>VHT MCS rates, 256-QAM, HT20/40/80 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transmit beamsteering, Airtime Fairness, Packet Aggregation (AMSDU, AMPDU) RIFS, STBC, LDPC, 802.11k, 802.11v, 802.11i</td>
</tr>
<tr>
<td></td>
<td>MIMO Power Save, MRC, BPSK, QPSK, CCK, DSSS, OFDM. IEEE 802.11d/e/h/i/k/r/u/v</td>
</tr>
</tbody>
</table>
cnPilot™ e505, e510, e700 Outdoor Access Points

Antenna Patterns - e505

2.4 GHz Azimuth

2.4 GHz Elevation

5 GHz Azimuth

5 GHz Elevation
Antenna Patterns - e510

5 GHz Azimuth

Max Gain (dB): 20
Scale: 10dB/Div

2.4 GHz Azimuth

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

5 GHz Elevation

Max Gain (dB): 20
Scale: 10dB/Div

2.4 GHz Elevation

Max Gain (dB): 10
Scale: 10dB/Div
cnPilot™ e505, e510, e700 Outdoor Access Points

Antenna Patterns - e700

2.4 GHz Azimuth

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

2.4 GHz Elevation

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

5 GHz Azimuth

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

5 GHz Elevation

Max Gain (dB): 10
Scale: 10dB/Div
cnPilot™ e505, e510, e700 Outdoor Access Points

- **e505**
  - Front
  - Back
  - Side
  - Bottom

- **e510**
  - Front
  - Back
  - Side
  - Bottom

- **e700**
  - Front
  - Back
  - Bottom
cnPilot™ e505, e510, e700 Outdoor Access Points

### e505 Ordering Information
- **PL-E505X00A-US**: cnPilot e505 Outdoor (FCC) 802.11ac Wave 2, 2x2, 5 dBi Omni AP, IP55
- **PL-E505X00A-EU**: cnPilot e505 Outdoor (EU) 802.11ac Wave 2, 2x2, 5 dBi Omni AP, IP55
- **PL-E505X00A-RW**: cnPilot e505 Outdoor (ROW) 802.11ac Wave 2, 2x2, 5 dBi Omni AP, IP55
- **N000000L034A**: Power supply, 30 W, 56 W, RJ45 – Gbps support. C5 AC port. AC line cord sold separately

### e510 Ordering Information
- **PL-E510X00A-US**: cnPilot e510 Outdoor (FCC) 802.11ac Wave 2, 2x2, 8 dBi, WLAN AP
- **PL-E510X00A-EU**: cnPilot e510 Outdoor (EU) 802.11ac Wave 2, 2x2, 8 dBi, WLAN AP
- **PL-E510X00A-RW**: cnPilot e510 Outdoor (ROW) 802.11ac Wave 2, 2x2, 8 dBi, WLAN AP
- **AX-E510RBKT-WW**: Shock Mount for e510

### e700 Ordering Information
- **PL-E700X00A-US**: cnPilot e700 Outdoor (FCC) 802.11ac Wave 2, 2x2/4x4, AP
- **PL-E700X00A-EU**: cnPilot e700 Outdoor (EU) 802.11ac Wave 2, 2x2/4x4, AP
- **PL-E700X00A-RW**: cnPilot e700 Outdoor (ROW) 802.11ac Wave 2, 2x2/4x4, AP

Not all SKUs are available at first release. Consult your Cambium Networks distributor for country availability.

**LIMITED WARRANTY**

Cambium Networks cnPilot e505, e510, e700 are covered by an extended hardware warranty for a period of 3 years after point of sale.

**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.

cambiumnetworks.com

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3800 Golf Road Suite 360, Rolling Meadows, Illinois 60008 USA