

cnPilot™ e410, e600 Indoor Wi-Fi Access Points

802.11ac Wave 2

QUICK LOOK:

Designed to scale from small enterprises to K12 schools, the e410 and e600 feature an easy-to-install integrated bracket and is enterprise grade 802.11ac Wave 2.

e410 and e600 share a common industrial design for repeatable and predictable installation in any enterprise or business. Both access points (AP) can be managed by cnMaestro cloud, on-premises cnMaestro, a private datacenter or as a standalone AP.



	e410	e600
802.11 a/b/g/n/ac Wave 2	✓	✓
5 GHz / 2.4 GHz streams	2x2 / 2x2	4x4 / 2x2
Gigabit Ethernet	1	2



CLOUD-MANAGED ACCESS

cnMaestro™ provides end-to-end cloud Dashboard for Wi-Fi, Ethernet, and fixed wireless broadband:

- Zero-touch onboarding
- Inventory tracking & monitoring
- Mass configuration & upgrade
- Dashboard views with alarms
- Troubleshooting
- Hierarchical device organization

cnMaestro Essential cloud management is included at no additional cost. No setup fee, no license, and no recurring cost.

CONTROLLER-LESS ROAMING, POWERFUL SIMPLICITY

cnPilot e410 and e600 include controller-less distributed intelligence for seamless roaming and enhanced roaming for up to 1,000 devices. cnMaestro management provides end-to-end visibility and zero-touch provisioning across thousands of sites.

MONETIZE: VOUCHERS. SOCIAL LOGIN

A hotspot portal can be designed in the cloud and distributed to each site's access point with a single touch. Wi-Fi hotspot capabilities support splash page hosting, social login, temporary access vouchers, and multiple credit card payment gateways. Control time, rate and data volume traffic profiles.

HIGH CAPACITY AND RELIABILITY

Airtime fairness, standardized beamsteering, and MU-MIMO increase network capacity while automatic RF management monitors performance and optimizes the network to avoid interference. Detailed network statistics, utilization graphs, and integrated troubleshooting ensure service is always on.

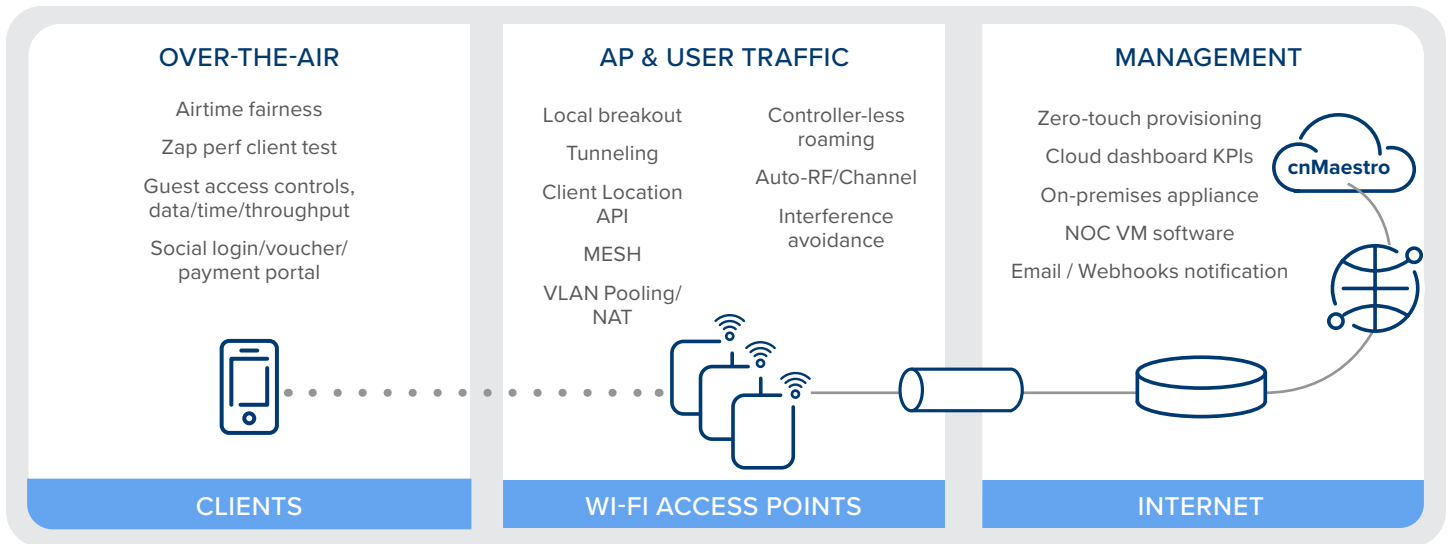
cnPilot™ e410 and e600 Indoor Wi-Fi Access Points

Access Point Specifications				
	e410 (Hardware specs subject to change)		e600	
US-FCC	CH 1–11, 36–64, 100–144, 149–165		CH 1–11, 36–64, 100–144, 149–165	
ISED Canada	CH 1–11, 36–64, 100–116, 149–165		CH 1–11, 36–64, 100–116, 149–165	
EU-ETSI	CH 1–13, 36–64, 100–140		CH 1–13, 36–64, 100–140	
ROW	CH 1–13, 36–64, 100–144, 149–165 2400–2483.5 MHz, 5150–5850 MHz <i>Individual country limitations apply</i>		CH 1–13, 36–64, 100–144, 149–165 2400–2483.5 MHz, 5150–5850 MHz <i>Individual country limitations apply</i>	
DFS	Channels to be released later			
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		1 x 5 GHz radio (802.11 a/n/ac Wave 2), 4x4 1 x 2.4 GHz (802.11 b/g/n), 2x2 SU-MIMO / MU-MIMO: 4 streams	
Wi-Fi	802.11 a/b/g/n/ac		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: 400 Mbps	5 GHz: 867 Mbps	2.4 GHz: 400 Mbps	5 GHz: 1733 Mbps
Ethernet	One IEEE Gigabit Ethernet auto sensing		Two IEEE Gigabit Ethernet auto sensing	
USB Ports	–		1 USB 2.0 port	
Antenna	Internal omni-directional 2.4 GHz: 5.24 dBi 5 GHz: 5.47 dBi		Internal omni-directional 2.4 GHz: 5.28 dBi 5 GHz: 6.11 dBi	
Max EIRP	2.4 GHz: 29.50 dBm 5 GHz: 30 dBm (EIRP limited by country regulations)		2.4 GHz: 29.28 dBm 5 GHz: 34.11 dBm (EIRP limited by country regulations)	
WLAN	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 powered device Typical load: 9 W, Max: 11.5 W		802.3af or 802.3at powered device Typical load: 12 W, Max: 22 W 2.1 mm 12 VDC barrel connector	
Mounting	Desktop, Wall, ceiling tile mount - included T-bar mount 14 mm x 24 mm x 38 mm (0.55 in x 0.94 in x 1.5 in) Ceiling Tile mount included Kensington lock slot		Desktop, Wall, ceiling tile mount - included T-bar mount 14 mm x 24 mm x 38 mm (0.55 in x 0.94 in x 1.5 in) Ceiling Tile mount included Kensington lock slot	
Dimensions	180 mm x 180 mm x 42mm (7.09 in x 7.09 in x 1.65 in)		180 mm x 180 mm x 42mm (7.09 in x 7.09 in x 1.65 in)	
Weight	384 g (0.85 lb)		400 g (0.88 lb)	
LEDs	Single Tri-color LED (amber, blue, green)		Single Tri-color LED (amber, blue, green)	
Ambient Operation Temperature	0°C to 50°C (32°F to 122°F)		0°C to 50°C (32°F to 122°F)	
Storage Temperature	-40°C to 70°C (-40°C to 158°F)		-40°C to 70°C (-40°C to 158°F)	
Humidity	95% RH non-condensing		95% RH non-condensing	
MTBF	1.5m hours		1m hours	
Certifications	Wi-Fi Alliance 802.11 a/b/g/n/ac, Passpoint 2.0 FCC, ETSI, CE, EN 60601-1-2, IEC62368 UL2043		Wi-Fi Alliance 802.11 a/b/g/n/ac, Passpoint 2.0 FCC, ETSI, CE, EN 60601-1-2, IEC62368 UL2043	

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Management

Adaptive cnPilot Network



Cambium cnMaestro uses a distributed intelligence architecture with a cloud-first cnMaestro management and edge-intelligent access points that self-optimize for the RF environment. cnMaestro and cnPilot access points 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 broadband fixed wireless, cnMatrix Ethernet switches, enterprise-grade Wi-Fi access points and service provider residential routers.

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

Deployment cnMaestro Cloud, cnMaestro on-premises,
Standalone AP

Services Monetized 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™ e410 and e600 Indoor Wi-Fi Access Points

WLAN And Network Specifications

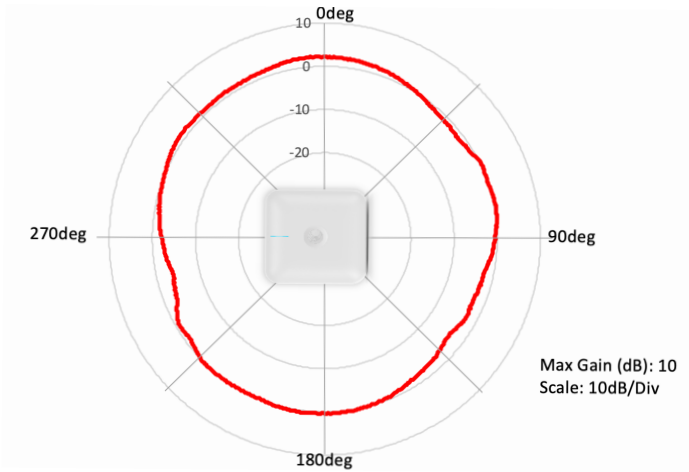
Authentication Encryption	802.1x EAP-SIM/AKA/AKA'/FAST, EAP-PEAP, EAP-TTLS, EAP-TLS/MSCHAPv2, PEAPv0/PEAPv1 MAC authentication to local database (on AP, on Controller) or external RADIUS. MAC auth fallback to guest portal	Network	NAT, NAT logging firewall, DOS protection, L2/L3/DNS ACL, DHCP server, DHCP Relay option 82 LLDP, IGMP v1, v2 VLAN Pooling, RADIUS attribute VID VLAN per SSID, per user Wireless Intrusion Detection
Scheduled WLAN	On/off by day, week, time of day	Band Steer Load Balance	Yes
QoS	802.11e/WMM QoS. DSCP/ToS mapping	Tunnel	L2TPv2, L2GRE, PPPoE
VLAN	802.11Q, max 4096	Network and RF Management Tools	Out-of-band RF spectrum analysis, RF monitor with channel/noise/interference, wired and wireless remote packet capture, ZapD performance tool, rogue AP detection
Fast Roaming	802.11r, OKC, cnMaestro assisted roam		
Sticky Client	Enhanced roaming with thresholds		
Mesh	Multi-hop (2), either band		
Channel Selection	Auto RF: manual or automatic		
APIs	RESTful management and statistics API Presence location API Splunk WebSocket integration, WebSocket DNS, NAT, TCP connection log		

Standards

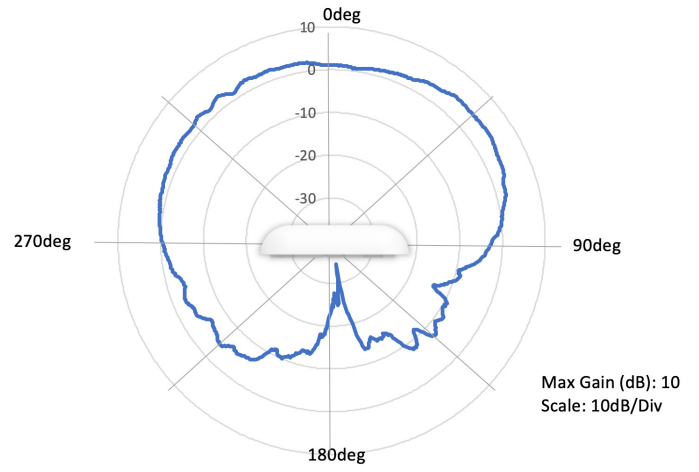
Wi-Fi Protocols	VHT MCS rates, 16-QAM, 64-QAM, 256-QAM, HT20/40/80 MHz
	Transmit beamsteering, Airtime Fairness, Packet Aggregation (AMSDU, AMPDU) RIFS, STBC, LDPC, 802.11k, 802.11v
	MIMO Power Save, MRC, BPSK, QPSK, CCK, DSSS, OFDM. IEEE 802.11d/e/h/i/k/r/u/v

cnPilot™ e410 and e600 Indoor Wi-Fi Access Points

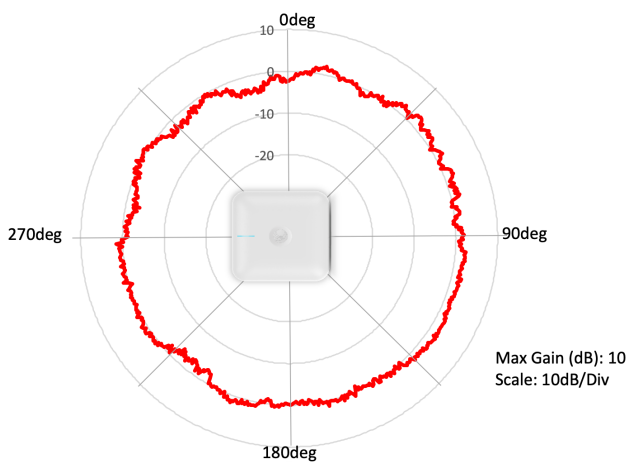
Antenna Patterns - e410



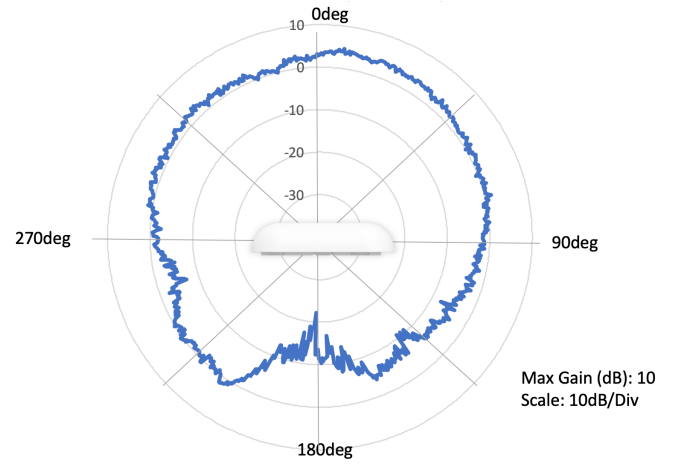
2.4 GHz Azimuth



2.4 GHz Elevation



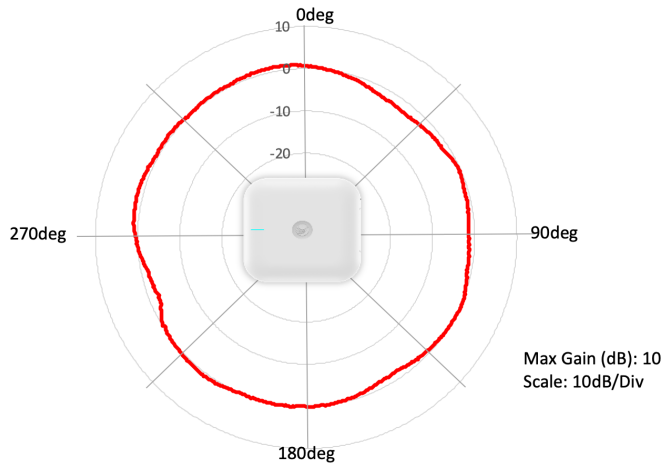
5 GHz Azimuth



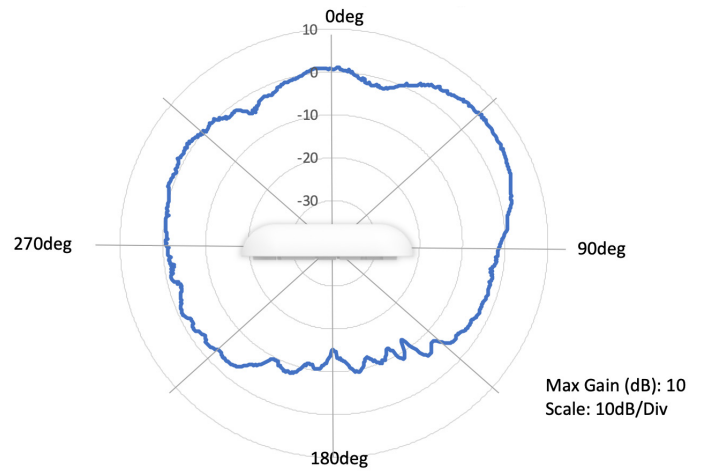
5 GHz Elevation

cnPilot™ e410 and e600 Indoor Wi-Fi Access Points

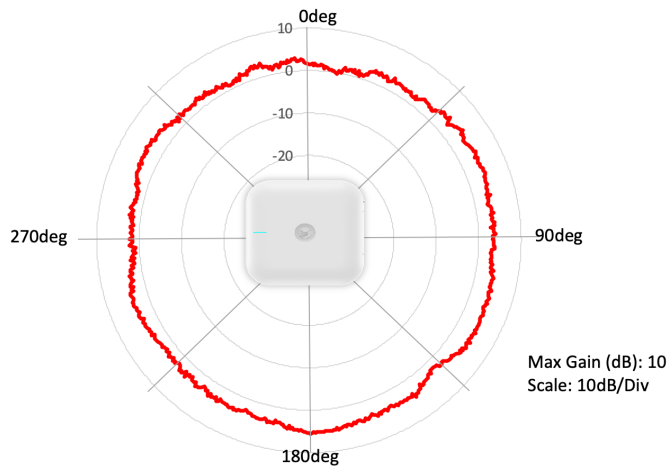
Antenna Patterns - e600



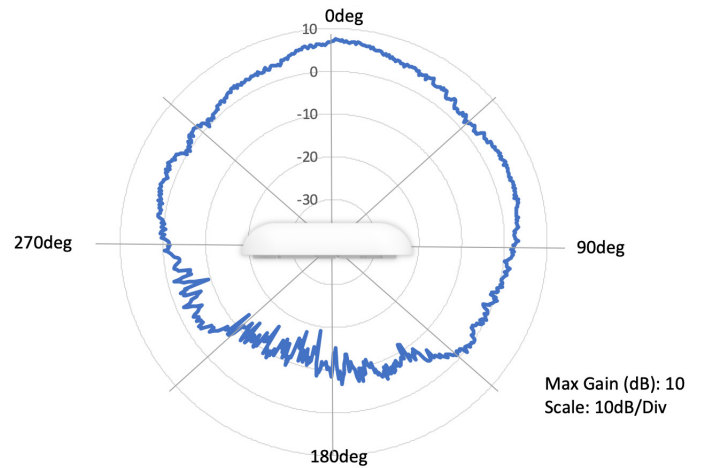
2.4 GHz Azimuth



2.4 GHz Elevation



5 GHz Azimuth



5 GHz Elevation

cnPilot™ e410 and e600 Indoor Wi-Fi Access Points



e410 Ordering Information

PL-E410X00B-US	e410 Indoor (FCC) 802.11ac Wave 2, 2x2, AP
PL-E410X00B-EU	e410 Indoor (EU) 802.11ac Wave 2, 2x2, AP
PL-E410X00B-RW	e410 Indoor (ROW) 802.11ac Wave 2, 2x2, AP
PL-E410X00B-CA	e410 Indoor (IC) 802.11ac Wave 2, 2x2, AP

e600 Ordering Information

PL-E600X00A-US	e600 Indoor (FCC) 802.11ac Wave 2, 4x4, AP
PL-E600X00A-EU	e600 Indoor (EU) 802.11ac Wave 2, 4x4, AP
PL-E600X00A-RW	e600 Indoor (ROW) 802.11ac Wave 2, 4x4, AP
N000000L034A	Power supply, 30 W, 56 W, RJ45 – Gbps support. C5 AC port. AC line cord sold separately

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

LIMITED WARRANTY

Cambium Networks cnPilot e410 and e600 are covered by a limited lifetime hardware warranty for a period of 5 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.

cnPilot e501S

Outdoor Sector Wi-Fi Access Point

IP67 802.11ac 90°~120° Integrated Sector Antenna



Perfect for demanding, high density applications and longer range coverage across large areas, including: industrial or education campuses, enterprise and hospitality complexes, public parks and recreational areas, or just about any demanding outdoor environment requiring cost-effective, controller managed WLAN access points.

THE CNPILOT WI-FI NETWORK HIGHLIGHTS

Operational superiority – The e501S with integrated sector antenna supports 256 client associations, 16 SSIDs, WPA-2 encryption, Dynamic VLANs, DFS channels, Access Control Lists (ACL), and more. The 802.11ac e501S is the essential workhorse for today's demanding, high density outdoor Wi-Fi networks.

High performance Wi-Fi network - All cnPilot's Enterprise access points (APs) support features like controller-less roaming, dynamic channel selection, automatic transmit power control, band steering, and more – essential features for easy Wi-Fi operations.

Mesh Rapidly setup multi-hop mesh networks either dedicating one radio (e.g.: 5 GHz) for mesh backhaul, or using both bands for client access simultaneously.


Wireless Backhaul Integration – the aux PoE port on the e501S offers PoE out, eliminating the need for a second power line perfect for powering on a standard 802.3af camera, or on Cambium's PMP 450 or ePMP backhaul subscriber modules (SMS) for wireless backhaul enabled Wi-Fi hotspots.

Resilience - Dual on-board Active/Standby memory banks ensure higher availability. The e501S can store two versions of the software – defaulting to a working operational software if needed – reducing the likelihood of site visits and increasing network up-time. Standard 3 year Warranty included, for peace of mind

DESIGNED FOR THE OUTDOORS

- 802.11ac, 256 users, 16 SSIDs
- 90°~120° coverage
- 23 dBm front-back ratio
- UV rated IP-67 enclosure
- Operating Temp: -30C ~ +60C
- Electrical heater for cold start
- Ruggedized - ESD protection, industrial-grade components
- Packaged with wall & pole mount bracket
- Special LTE coexistence filters
- Light weight ~ 1.3 Kg

cnMAESTRO™ – WI-FI CONTROLLER

- Guest Access: Custom splash pages, vouchers, social login 
- Zero-touch provisioning
- Inventory tracking
- Map location
- Monitoring: key stats, alarms
- Mass (bulk) upgrade
- Integrated troubleshooting: Wi-Fi APs, clients & Cambium SMS
- Controller: Cloud or Virtual On-premises (NOC) controller

Access Point Specifications

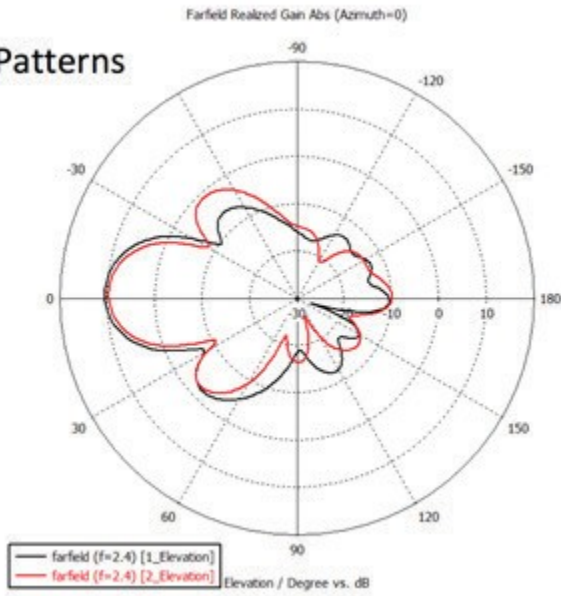
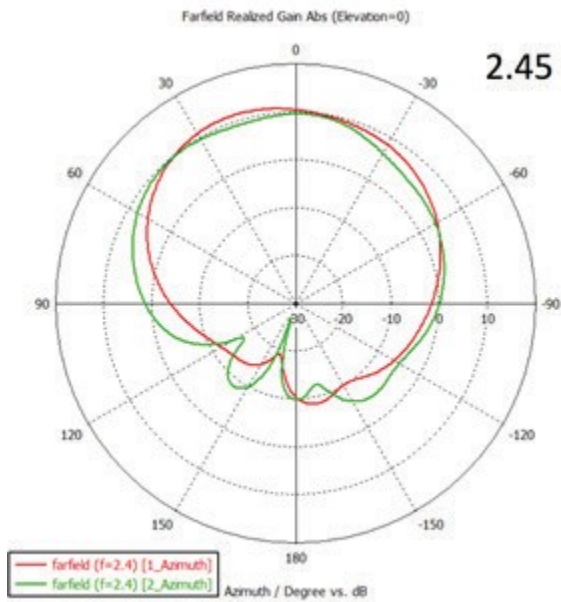
Standards	IEEE 802.11a/b/g/n/ac IEEE 802.11d/e/h/i/k/r/u/v/w Modulation: BPSK, QPSK, CCK, 16/64/256-QAM Radio modes : DSSS, OFDM	Frequency Bands	2.400 to 2.2484 GHz <i>(Country-specific limits apply, some bands require DFS)</i> 5.150 to 5.250 GHz 5.250 to 5.350 GHz 5.470 to 5.725 GHz 5.725 to 5.850 GHz
MIMO, Streams	2x2:2 MIMO	Power Supply	802.3af PoE Injector, or PoE switch. 802.3at or PoE+ if using PoE-Out Aux port.
Channel Width	20MHz, 40MHz, 80MHz	Dimensions	30 x 20.4 x 6.5 cm (11.8 x 8 x 2.55 Inch)
Concurrent Clients	256	Weight	1.3 Kg (2.8 lb)
SSIDs	16	Operating Temperature	-30°C to +60°C (-22°F to +140°F)
Antenna	Dual polarized, Omnidirectional, Integrated	Operating Humidity	up to 95% non-condensing
Transmit Power <i>(conducted total)</i>	2.4GHz : 29dBm 5GHz : 28dBm	Power Consumed	13W (max, without PoE-out) 8W (typical)
Antenna Gain	2.4GHz : 10.5dBi 5GHz : 13dBi	Secure Mounting	Kensington Key Slot
Max Data Rate	2.4GHz : 300Mbps 5GHz : 867Mbps	Environment Rating	IP67
LED	Two multi-color software controlled LEDs	MTBF	2,331,610 Hours
Interference Mgmt	Hardware LTE Filtering	PoE-Out	Aux Port supports Cambium and 802.3af modes
Ethernet Ports	Two auto-sensing auto MDIX Gigabit Ethernet (10/100/1000 Mbps) RJ45 Ports	Reset Button	Supported
Radio Features	Maximum ratio combining (MRC) Cyclic delay/shift diversity (CDD/CSD) Space-time blocking coding (STBC) Low-density parity check (LDPC) Packet Aggregation: A-MPDU, A-MSDU	Certifications	FCC, CE, IC, UL, EN60601-1-2 (Medical EMC), WEEE/RoHS compliance
Wi-Fi Alliance	Wi-Fi certified a,b,g,n,ac WPA2 – Enterprise, Personal WMM, Passpoint	Mounting Options	Wall and Pole mount bracket. Supports Poles with 1.5” and 3” Diameter.

Wi-Fi Features

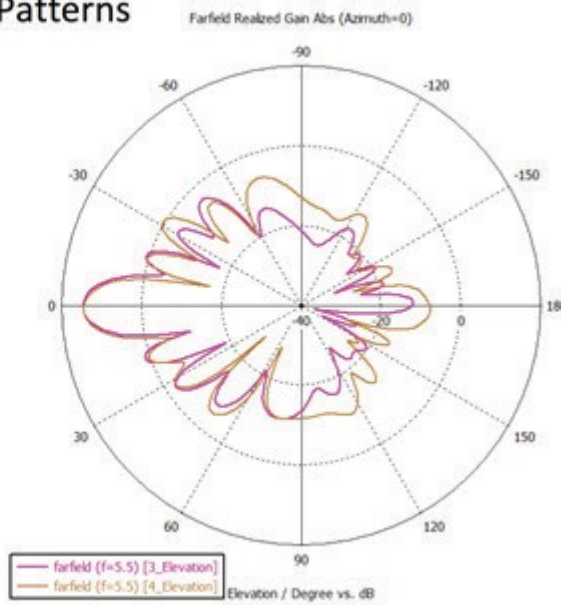
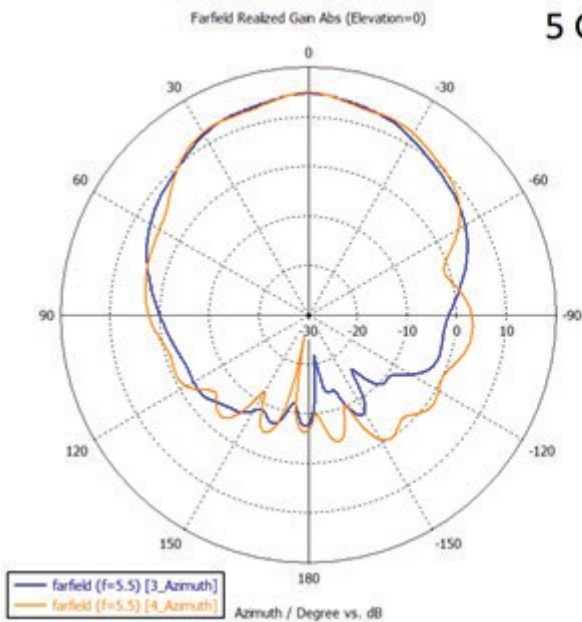
Management Modes	cnMaestro cloud managed cnMaestro on-premises VM controller managed Autopilot (AP as controller) Standalone with AP GUI (http/https), CLI (telnet/ssh)	Wireless Security	WPA-TKIP, WPA2-AES, 802.11i WPA-PSK, WPA2-PSK, WPA2-Enterprise 802.1x Authentication with various EAP types (EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-AKA', EAP-FAST Protected Management Frames (802.11w)
RF Management	AutoRF automatically manages channel and power	Dynamic SSID Service	By time/date, by monitored host.
Guest Access Captive Portal	cnMaestro Controller Portal Integrates with 3 rd party Guest Access Portals Built-in Portal on AP LDAP & RADIUS authentication Walled Garden with DNS whitelist Wireless as well as Wired devices supported.	MAC Authentication	On-AP MAC filtering list. On-Controller MAC filtering list. RADIUS MAC Authentication. MAC Authentication fallback to Captive Portal
Rate Limiting	Per-client, Per-WLAN static and dynamic rate limiting	Firewall	Layer-2, Layer-3, DNS ACL. DoS Attack Protection.
Client Isolation	On AP, Network-wide.	3G/4G/LTE Offload	Passpoint (Hotspot 2.0)
Fast Roaming	802.11r, Opportunistic Key Caching, Enhanced Roaming	DHCP Relay	Supported, with Option-82 customization
Airtime Mgmt	Airtime Fairness, Band Steering, Band Balancing	NMS Monitoring	SNMP v1, v2c, v3
AAA Support	RADIUS Authentication, Accounting, Dynamic Authorization (CoA, DM). Server failover, load-balancing	Client APIs	Client Presence/Location API DNS, NAT and TCP Connecting Logging
QoS	802.11e/WMM QoS. DSCP/ToS mapping.	Time Synchronization	Auto (from controller), NTP
Ethernet (L2) Services	802.1p/802.q, RADIUS assigned VLAN, VLAN per SSID, VLAN pooling. LLDP. IGMP Snooping (v1/v2/v3)	Troubleshooting Tools	Packet Capture, Spectrum Analyzer, Ping, Traceroute, Syslogs
Mesh	WDS Mesh with Single and Multiple radio hops.	Traffic Tunnels	L2TP, L2oGRE, PPPoE
Network Services	NAT, DHCP Server		

2D GAIN PATTERNS

2.45 GHz Patterns



5 GHz Patterns



ORDERING INFORMATION: cnPILOT e501S

Regulatory Model Number (common to all SKUs):

C000100P501

A Sales part #

Region

PL-E501SYXXA-<US/EU/CA/IL/JP/EG/LK/RW>

Y = if this position has a "p", then that SKU includes a PoE Injector and localized AC line cord
 Y = if this position has a "X", then that SKU does not include a PoE Injector or AC line cord. YY will always be "00"
 XX = if this position has a two-digit country code, then a localized AC line cord is included for the specified country code
 The following countries require a unique two-digit regulatory country code appended to the part number:
 United States (US), Canada (CA), Europe (EU), Israel (IL), Egypt (EG), Sri Lanka (LK). For other certified countries, use the Rest of World (RW) two-digit country code