Cambium Networks™

cnPilot™ E501S Outdoor Sector

IP67 802.11ac 90° ~ 120° Outdoor Sector Access Point

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 WiFi 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.

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: -30°C ~ +60°C
- Electrical heater for cold start
- Ruggedized - ESD protection, industrial- grade components
- Packaged with wall mount brackets
- Special LTE coexistence filters
- Light weight ~ 1Kg

cnMAESTRO - WIFI 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

OVER-THE-AIR

AirTime fairness

Client (Zap compatible) perf testing

Guest access limits

Client location API per AP

VLAN pooling

Outdoors: Power CPEs from APs

AP FEATURES

Multi-hop Mesh

autoPilot controller

Controller-less roaming

autoRF dynamic Tx power control

cnCheckin guest access

Location APIs

USER TRAFFIC OPTIONS

Local breakout (LBO)

External GW tunneling – L2TP, L2oGRE, PPoE

VLAN pooling and per VLAN per SSID tagging

CONTROLLER: CLOUD OR ON-PREMISES (NOC)

NOC: Setup controller to tunnel user traffic

Monitor, configure, upgrade all APs

User access: Data with limits

SMS notifications

cnMaestro CONTROLLER

INTERNET

CLIENTS

cnPILOT APS
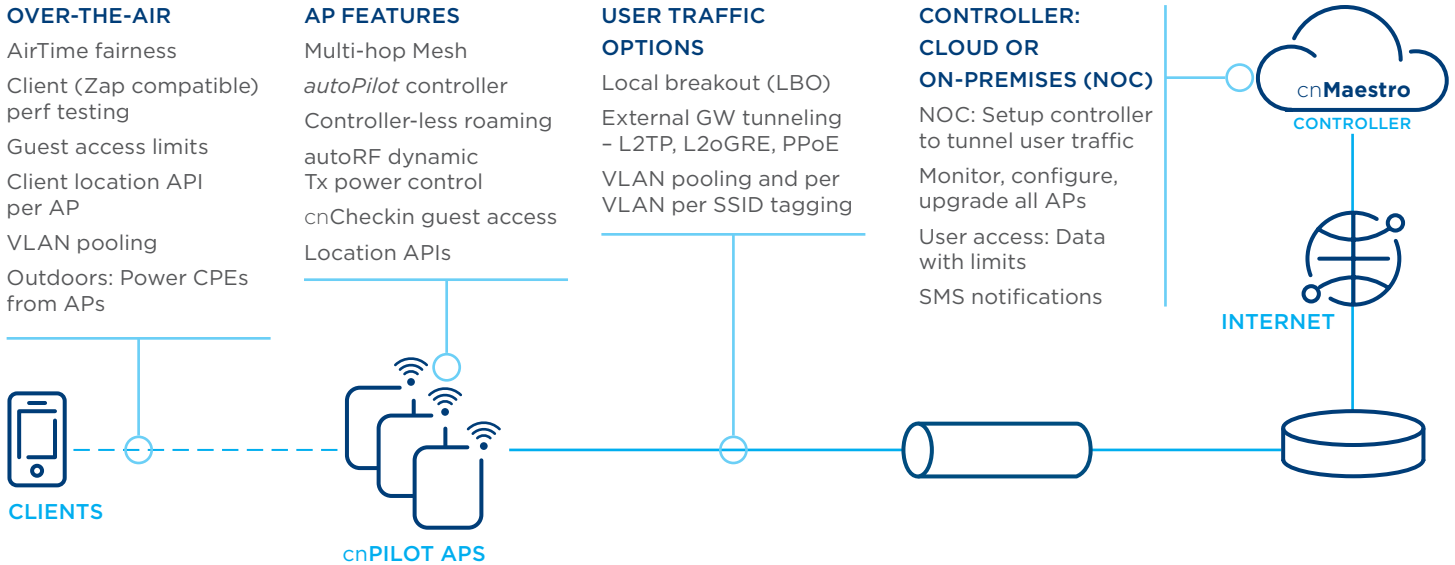
SPECIFICATIONS

ACCESS POINT SPECIFICATIONS

Frequency Bands	2.4 GHz: 2.4 – 2.4835 GHz
	  Channels 1 – 13 (ETSI/CE),
	  Channels 1 – 11 (US)
	5 GHz: 5.15 – 5.85 GHz

SSID Security	WPA-2 (802.11i): WPA2-Enterprise (802.1x/EAP) & WPA2-Preshared-keys, Open
Max SSID	16
Max Concurrent Clients	256
Max Range	Client: 213 m (700 Ft); Actual range will vary based on local RF conditions & client capability. Mesh: 2.4 GHz: 3,000 m (9840 Ft.) 5 GHz: 1,500 m (4,900 Ft.)
Max Data Rates	1.01 Gbps
Ethernet Ports	Dual Gigabit Ethernet ports (2 x 10/100/1000Base-T)
Antenna	Dual polarized. 2x2 MIMO. Integrated Sector antenna
Antenna Gains	10.5 dBi on 2.4GHz 13 dBi on 5GHz
Power Supply	56V/30W Gigabit passive PoE injector
PoE Out	Aux port: capable of 802.3af Power out or Canopy power (for supported Cambium ePMP or PMP450 SMs)
Transmit Power	29dBm @ 2.4GHz 28dBm @ 5 GHz
Power Consumed	Typical: 8W Max: 12.95W (no auxiliary device connected)
Dimensions (CM)	30 x 20.4 x 6.5 cm (without bracket)
Weight	Without bracket: 881 g (0.88 Kg); with Bracket: 1,063 g (1.06 Kg)
Operating Temperature	-30ºC ~ +60ºC
Mounting Options	Pole mount bracket (included) or wall-mount (with included bracket or without)
LTE Co-Existence	Special filter for rejecting interference on 2.4 GHz from adjacent LTE bands 38, 40
Physical Security	Kensington Lock bracket
Visaul Status	Two (2) multi-color LEDs indicating Access Point & cnMaestro connectivity status

SPECIFICATIONS

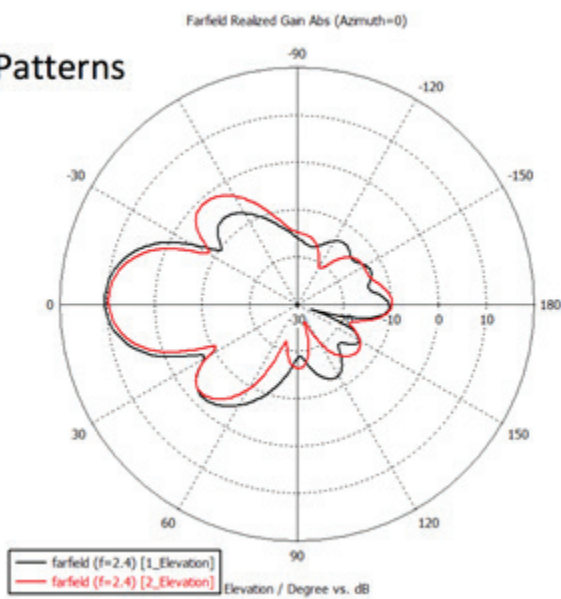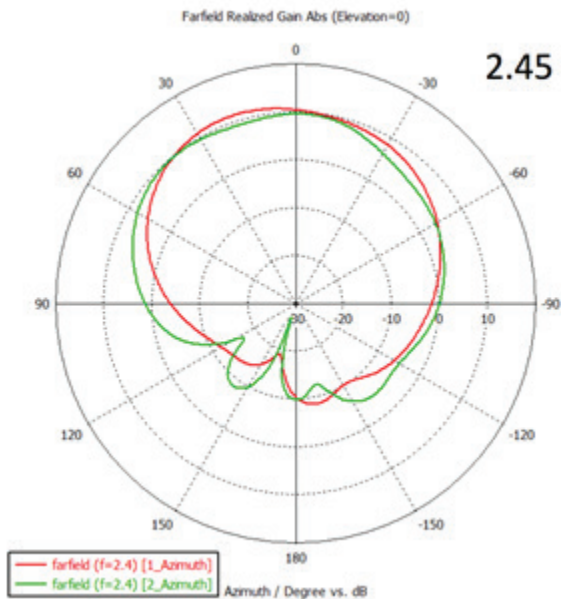## WI-FI FEATURES

Controller modes	• Autonomous Controller-less operations (E.g.: roaming) • Cloud Managed • On-premise virtualized controller	ACS: Automatic Channel Selection	autoTune: Autonomous dynamic off-channel scans w/o disconnecting clients. Periodic scans and scheduled scanning
Secure WLAN	• WPA-TKIP, WPA2 AES, 802.1x • 802.11w (Protected Management Frames)	Automatic Tx Power Control	autoRF: Autonomous controller-less transmit power control
Hotspot 2.0/Passpoint	Yes	NAT	Yes
Captive Portal	• cnMaestro Controller • Stand-alone AP based• Redirection to external RADIUS • Server DNS logging	DHCP Server	Yes
		Firewall	Yes. NAT logging
Authentication	• RADIUS based 802.1x including EAP-SIM/AKA, EAP-PEAP, EAP-TTLS, and EAP-TLS • MAC authentication (local database or External RADIUS server)	ACL, DNS-ACL	Yes. L2, L3 or DNS based access control
		Band Steering Band Balancing	Yes
Accounting	Yes. Supports RADIUS based accounting to multiple AAAs	Airtime Fairness	Yes
Scheduled SSID	Turn SSID ON/OFF on a daily/weekly/time of day basis	Tunneling	• L2TP • L2oGRE • PPPoE
Guest Access	Yes. With Active Directory Integration • Vouchers • Rate limiting • Splash page creation on cnMaestro	Tools	• Packet capture • IP connectivity • Wi-Fi analyzer • Sniffer • Auto logging • ZapD (Open source) compliant performance test tool
VLAN	VLAN pooling, Dynamic VLAN assignment from RADIUS server. VLAN per SSID per user	Services	NTP server config cnPilot's dependent resource Syslog servers state awareness feature SNMP traps support (ADRES) turns SSID ON/OFF DNS proxy based on underlying resource connectivity state
Data Limiting	Dynamic rate limiting of client traffic per SSID		
Subscriber QoS	WMM		
Client Isolation	Yes		
Controller-Less Fast Roaming	Yes. 802.11r, Opportunistic Key Caching supports Enhanced roaming. Disconnect for sticky clients	APIs	Presence Location APIs
Airtime Fairness	Yes	Certifications	FCC, ETSI, CE EN 60601-1-2 (Medical EMC) UL2043 Plenum rated
Meshing	Multi-hop meshing supported (3)		

cnMAESTRO WI-FI CONTROLLER
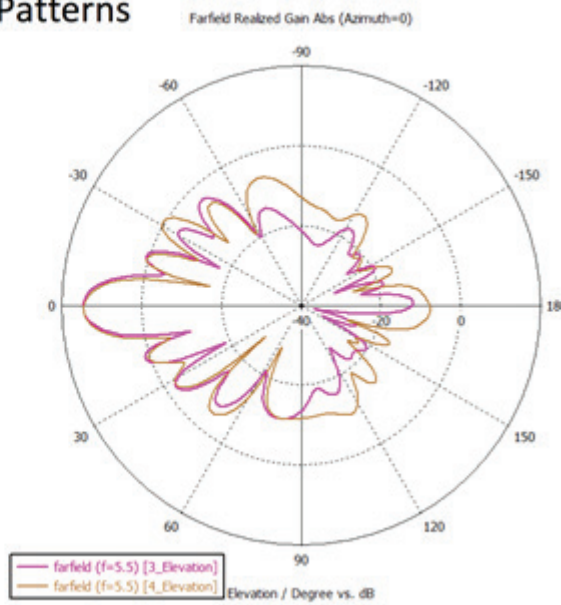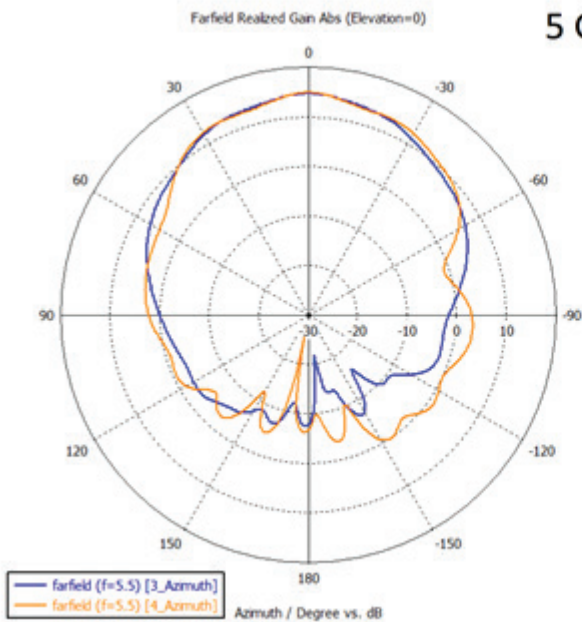
Common Framework	Single-pane-of-glass common manager for Cambium's cnPilot WiFi, ePMP and PMP wireless backhaul products
On-Boarding	Secure zero touch fast on-boarding
Provisioning	Easy zero touch virtual network provisioning Provision before install (pre-provision)
Device Inventory	Inventory tracking
Troubleshooting	ezDetect: Advanced end to end troubleshooting of WiFi Access Point and Client devices on one single screen. Extends to Wireless backhaul (PTP), Wi-Fi Hotspot & Clients . Includes Packet capture and Wireless Analyzer functions
Intuitive Views	Map location Hierarchical Dashboard views
Client Insight	Client history with client manufacturer view
Monitoring & Alarms	Alarms and events management – Critical/Major/Minor Key statistics graphs and sticky alarm summary display
Configuration	GUI based configuration or template based configuration options
Software Upgrade	Bulk upgrade with ability to upgrade multiple WiFi APs
Multiple Admins	Multiple admin provisioning per account
Guest Portal (ezCheck In)	Create free or paid guest sessions – Limit by Time, Rate and Bytes. Includes portal customization and built-in social login

2D GAIN PATTERNS

2.45 GHz Patterns

5 GHz Patterns

Ordering Information:	cnPilot Outdoor E501S
Regulatory Model Number (common to all SKUs):	C000100P501A
Sales part #	Region
PL-501SPXXA-<US/EU/RW>	E501S for US, EU or RoW with PoE injector. XX = US, EU and various other country cords supported models XX examples: IN (India), UK (The United Kingdom), AN (Australia & NZ), CN (China), BR (Brazil) etc
PL-501S000A-<US/EU/RW>	E501S model without a PoE injector. Available in US, EU or RoW models

Discover more information on cnPilot at: http://community.cambiumnetworks.com/

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