

ROZPOČET S VÝKAZOM VÝMER

„Wifi pre Teba - vytvorenie Access pointov“ pre obec Pribiš

Zhotoviteľ: NEVIA, SE
Adresa: Mojš 139, 010 01 Mojš
IČO: 52 710 050

Spracoval: Vladimír Staňo
Dátum: 21.03.2023

P.č.	Popis	MJ	Množstvo celkom	Cena jednotková	Cena celkom
1	Vnúťomý (indoor) Access point CPU nominal frequency: 720 MHz Size of RAM: 64 MB 10/100/1000 Ethernet ports: 1 Wireless standards: 802.11a/n/ac Secondary wireless standards: 802.11b/g/nPoE in: 802.3at Supported input voltage: 11 V - 57 V Dimensions: 185 x 85 x 30 mm Operating temperature range: -40 to +50C Max Power consumption: 12W Storage type: FLASH Storage size: 16 MB	ks	2	200	400,00 EUR
2	Vonkajší (outdoor) Access point CPU nominal frequency: 720 MHz Size of RAM: 64 MB 10/100/1000 Ethernet ports: 1 Wireless standards: 802.11a/n/ac Secondary wireless standards: 802.11b/g/nPoE in: 802.3at Supported input voltage: 11 V - 57 V Dimensions: 185 x 85 x 30 mm Operating temperature range: -40 to +50C Max Power consumption: 12W Storage type: FLASH Storage size: 16 MB	ks	7	320	2 240,00 EUR
3	Router board Desktop metal case, 5xEthernet, 5xGigabit Ethernet, PoE out on port 10, 600MHz CPU, 64MB RAM, RouterOS L4 CPU nominal frequency 600 MHz Dimensions 214x86mm Size of RAM 64 MB PoE in Passive PoE10/100 Ethernet ports 5 10/100/1000 Ethernet ports 5	ks	1	42	42,00 EUR
4	Montáž inštalácia Access point	ks	9	85	765,00 EUR
5	Montáž a inštalácia programovanie router board	ks	1	35	35,00 EUR
6	Inštalácia krabica do exteriéru	ks	2	35	70,00 EUR
7	Montáž krabice nevýbušnej do exteriéru	ks	2	12	24,00 EUR
8	1000 Mbps optický port, RJ45 port pre prenos, 8x 100 Mbps PoE+ portov IEEE802.3af/at; 1 port UPLINK, af štandard < 120W, at štandard < 240W, prenos do 150 m; napájanie DC 48V-55V; ESD: 6 kV, prepät. ochrana : 6 kV	ks	3	260	780,00 EUR
9	montáž a programovanie switcha	ks	3	95	285,00 EUR
10	Poskytuje 100 Mbps 1 fiber a 1 ethernet. port, dokáže konvertovať dáta fiber a ethernetom, 1x9 opt. modul a SC port, single mód single fiber, prenos až na 20 km, podporuje IEEE802.3af/at; podporuje rôzne typy SFP modulov, IEEE802.3 10BASE-T, IEEE802.3 100BASE-TX/FX	ks	2	78	156,00 EUR
11	SFP modul 100/10000	ks	4	15	60,00 EUR
12	Nástenný rozvádzač 12 SC FFTx box	ks	2	38	76,00 EUR
13	montáž nástenného rozvádzača	ks	2	8	16,00 EUR
14	optický kábel 12 vl 9/125 samonosný flat dropp	m	1000	1,1	1 100,00 EUR
15	montáž optického kábla ťahanie a uchytenie na stĺpy	m	1000	1,1	1 100,00 EUR
16	dátový gigabitový vonkajší kábel samonosný	m	800	0,5	400,00 EUR
17	Montáž dátového vonkajšieho kábla oznamovacieho	m	800	0,5	400,00 EUR
18	kotva na uchytenie kábla	ks	40	3,8	152,00 EUR
19	pigtail SM SC/UPC modrý	ks	4	1,5	6,00 EUR
20	zváranie optického kábla	ks	4	15	60,00 EUR
21	adaptér SC/UPC modrý	ks	4	1,5	6,00 EUR
22	UPS záložný zdroj 750VA	ks	2	100	200,00 EUR
23	ODF optický patch panel 24 port	ks	1	54	54,00 EUR
24	Montáž ODF patch panelu	ks	1	32	32,00 EUR
25	24 portový metalický gigabitový patch panel STP	ks	1	38	38,00 EUR
26	Montáž tieněného patch panelu 24 port	ks	1	40	40,00 EUR
27	Implementácia systému riešenie a integrácia do uceleného celku, programovanie a nastavenie ostatných prvkov, overenie funkčnosti a školenie obsluhy	ks	1	850	850,00 EUR
28	plošina do výšky 27 m	hod	16	25	400,00 EUR
29	Programovanie nastavenie oživenie systému kompatibilita	ks	1	630	630,00 EUR
celkom spolu bez DPH					10 417,00 EUR
DPH					2 083,40 EUR
cena celkom s DPH					12 500,40 EUR



NEVIA, SE
Mojš 139, 010 01 Mojš
IČO: 52710050
DIČ: 2121131089
IČ DPH: SK2121131089

pečiatka + podpis

Príloha č. 2: Podrobný popis prístupového bodu (AP) s väzbou na finančné limity

Položka	Merná jednotka	Počet jednotiek	Jednotková cena (v EUR bez DPH)	Vysúťážená suma celkom (v EUR s DPH)	Limity podľa Príručky pre oprávnenosť výdavkov PO7 OPII pre dopytovo orientované projekty „Wifi pre Teba“ (max. suma za 1 AP v EUR s DPH)
Externý prístupový bod (AP) č. 1 - 7:	<i>(nevypĺňa sa)</i>				1 500,00
Pristupový bod	ks	7	320,00	2 688,00	<i>(nevypĺňa sa)</i>
Inštalácia a konfigurácia AP, programovanie, implementácia a oživenie systému	ks	1	3 606,00	4 327,20	<i>(nevypĺňa sa)</i>
Centrálne komponenty (switch, router, nástenný rozvádzač, adaptér, kotva, optické káble)	súbor	1	2 911,00	3 493,20	<i>(nevypĺňa sa)</i>
Spolu				10 508,40	<i>(nevypĺňa sa)</i>
Interný prístupový bod (AP) č. 1 - 2:	<i>(nevypĺňa sa)</i>				1 000,00
Pristupový bod	ks	2	200,00	480,00	<i>(nevypĺňa sa)</i>
Inštalácia a konfigurácia AP, programovanie, implementácia a oživenie systému	ks	1	850,00	1 020,00	<i>(nevypĺňa sa)</i>
Centrálne komponenty (switch, router, nástenný rozvádzač, adaptér, kotva, optické káble)	súbor	1	410,00	492,00	<i>(nevypĺňa sa)</i>
Spolu				1 992,00	<i>(nevypĺňa sa)</i>
Celkom				12 500,40	


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 Mojs 139, 012 01 Mojs
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Test splnenia technických parametrov (TSTP) v rámci "Wifi pre Teba"

TSTP slúži pre žiadateľa ako podklad pre špecifikáciu riešenia spĺňajúcu minimálne technické parametre požadovaných výzvu.

Technické parametre riešenia sú navrhnuté v súlade so schválenou Štúdiou uskutočniteľnosti <https://metais.finance.gov.sk/studia/detail/8c95df2d-700e-47ce-a1b0-4cbf3334b453?tab=documents> a musia spĺňať požiadavky Robustného, Spoločného a Bezpečného produktu, ktorý poskytne občanom bezplatný prístup na internet prostredníctvom Wifi pripojenia.

- Robustný:** definuje minimálne technické parametre Prístupového bodu (Access pointu), resp. ostatného HW vybavenia,
- Spoločný:** definuje minimálne podmienky pre poskytnutie kvalitného internetového pripojenia,
- Bezpečný:** definuje minimálne podmienky pre sieťovú a fyzickú bezpečnosť.

Upozornenie: výsledky tohto testu slúžia výlučne pre potreby žiadateľa a nie sú zárukou výsledku v procese schvaľovania žiadosti o NFP.

Otázka č.	Znenie otázky	Odkaz na relevantnú časť Technických listov (žiadateľ uvedie predmetnú časť technických listov, resp. iného relevantného zdroja zodpovedajúceho konkrétnemu parametru)	Odpoveď* (po kliknutí na bunku vyberte jednu z možností)
1.	Kompaktné dvojpásmové WiFi zariadenia (2,4GHz - 5 GHz), ktoré sú certifikované pre európsky trh?	Data_sheet_cnPilot_e410_Indoor - 2. strana Data sheet_cnPilot_e510_Outdoor - 2. strana	Áno
2.	Životný cyklus použitých produktov vyšší ako 5 rokov?	Data_sheet_cnPilot_e410_Indoor - 7. strana Data sheet_cnPilot_e510_Outdoor - 10. strana	Áno
3.	Stredná doba medzi poruchami (MTBF) minimálne 5 rokov?	Data_sheet_cnPilot_e410_Indoor - 2. strana Data sheet_cnPilot_e510_Outdoor - 3. strana	Áno
4.	Možnosť centrálného manažmentu pre riadenie, monitoring a konfiguráciu siete (single point of management)?	Data_sheet_cnPilot_e410_Indoor - 3. strana Data sheet_cnPilot_e510_Outdoor - 4. strana	Áno
5.	Súlad s „802.11ac Wave 1, Institute of Electrical and Electronics Engineers“ (IEEE) štandardom?	Data_sheet_cnPilot_e410_Indoor - 1. strana Data sheet_cnPilot_e510_Outdoor - 1. strana	Áno
6.	Podpora 802.1x IEEE štandardu?	Data_sheet_cnPilot_e410_Indoor - 4. strana Data sheet_cnPilot_e510_Outdoor - 5. strana	Áno
7.	Podpora 802.11r IEEE štandardu?	Data_sheet_cnPilot_e410_Indoor - 4. strana Data sheet_cnPilot_e510_Outdoor - 5. strana	Áno
8.	Podpora 802.11k IEEE štandardu?	Data_sheet_cnPilot_e410_Indoor - 4. strana Data sheet_cnPilot_e510_Outdoor - 5. strana	Áno
9.	Podpora 802.11v IEEE štandardu?	Data_sheet_cnPilot_e410_Indoor - 4. strana Data sheet_cnPilot_e510_Outdoor - 5. strana	Áno
10.	Schopnosť AP obsluhovať naraz aspoň 50 rôznych užívateľov bez zníženia kvality služby?	Data_sheet_cnPilot_e410_Indoor - 2. strana Data sheet_cnPilot_e510_Outdoor - 2. strana	Áno
11.	Minimálne 2x2 MIMO (multiple-input-multiple-output)?	Data_sheet_cnPilot_e410_Indoor - 2. strana Data sheet_cnPilot_e510_Outdoor - 2. strana	Áno
12.	Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program)?	Data_sheet_cnPilot_e410_Indoor - 3. strana Data sheet_cnPilot_e510_Outdoor - 4. strana	Áno
13.	Súčasťou dodávky bude: projektová dokumentácia ktorá bude obsahovať sieťové zapojenie aktívnych prvkov siete s IP adresným plánom, Simuláciu pokrytia priestoru, Meranie skutočného pokrytia, technické listy aktívnych prvkov, funkčný popis a vyobrazenie obsahu hotspot portálu s umiestneným logom?	Zmluva o dodaní tovarov Čl. III Predmet zmluvy, ods. 3	Áno

Všetky otázky sú zodpovedané

Minimálne technické podmienky sú zadefinované.

0	Počet odpovedí "nie"	0
0	Počet nezodpovedaných otázok	0

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cnPilot™ e410, e600 Indoor Wi-Fi Access Points

5. 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

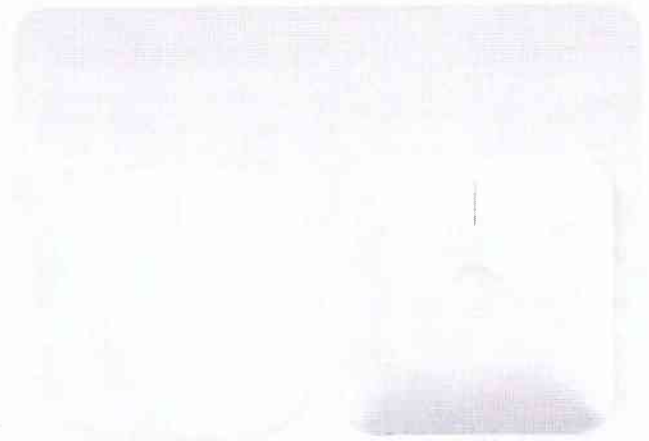


CLOUD-MANAGED ACCESS

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

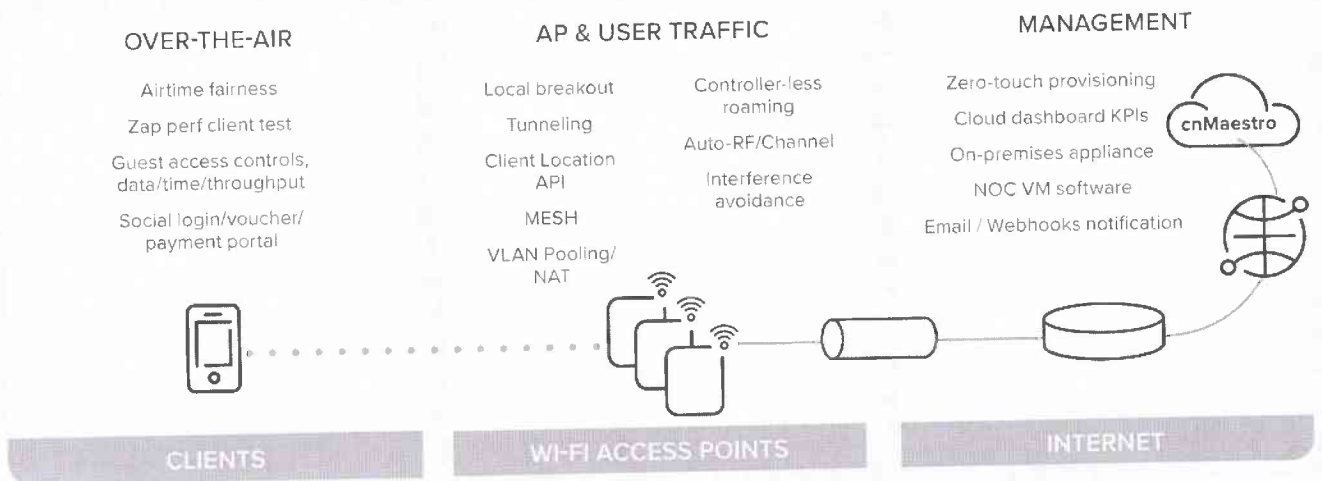
Access Point Specifications

	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 11. 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
1. 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)
10. 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
3. 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

cnPilot™ e410 and e600 Indoor Wi-Fi Access Points

4. 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

12. 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

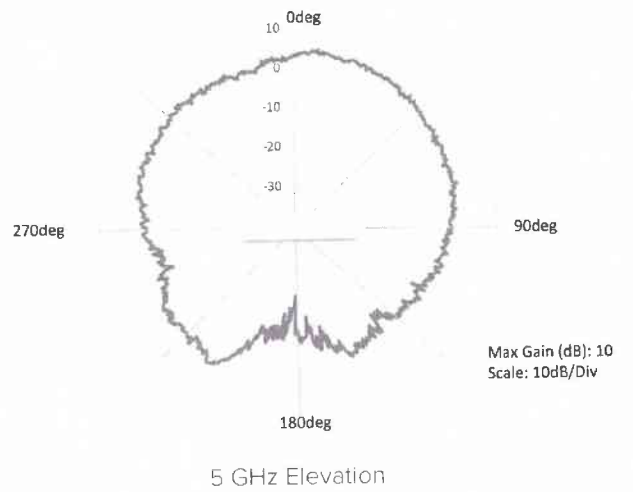
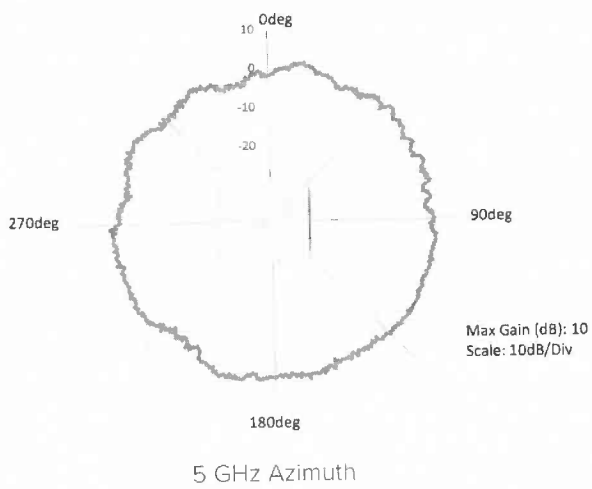
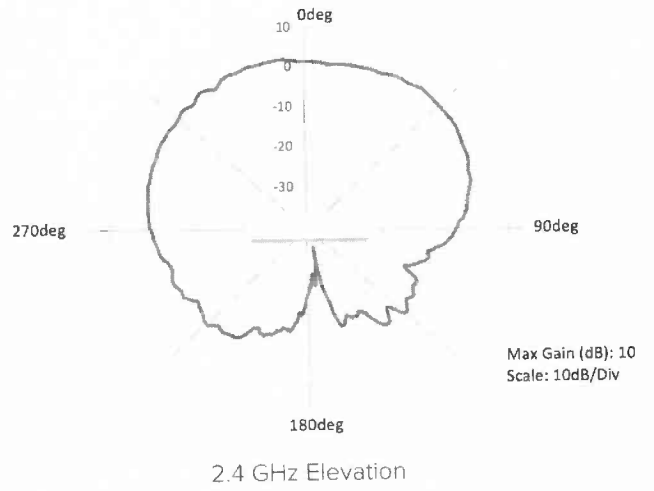
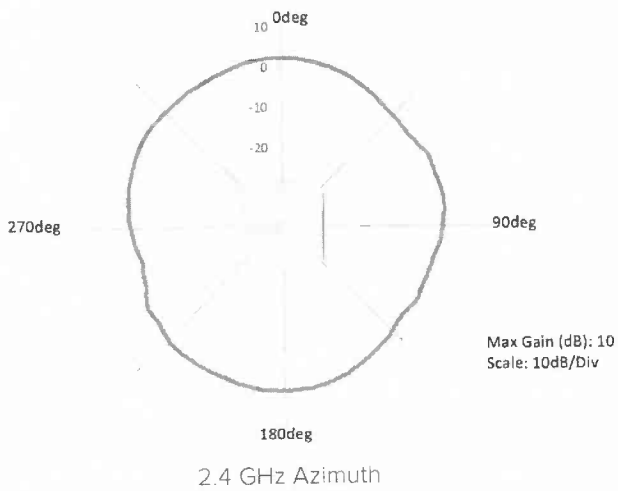
6.	<p>Authentication Encryption</p> <p>802.1x EAP-SIM/AKA/AKA'/FAST, EAP-PEAP, EAP-TTLS, EAP-TLS/MSCHAPv2, PEAPv0/PEAPv1</p> <p>MAC authentication to local database (on AP, on Controller) or external RADIUS.</p> <p>MAC auth fallback to guest portal</p>	<p>Network</p> <p>NAT, NAT logging firewall, DOS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

Standards

Wi-Fi	VHT MCS rates, 16-QAM, 64-QAM, 256-QAM, HT20/40/80 MHz
Protocols	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 7., 8., 9.

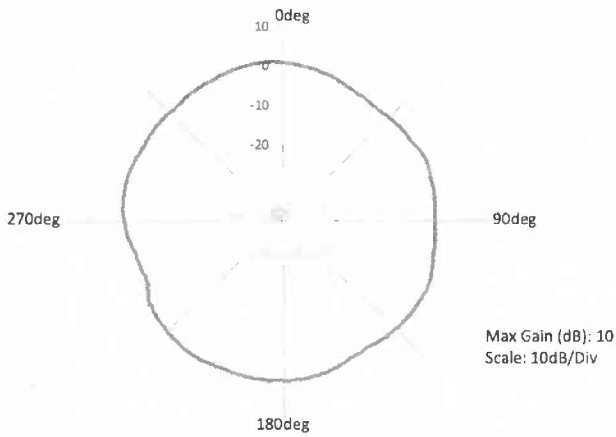
cnPilot™ e410 and e600 Indoor Wi-Fi Access Points

Antenna Patterns - e410

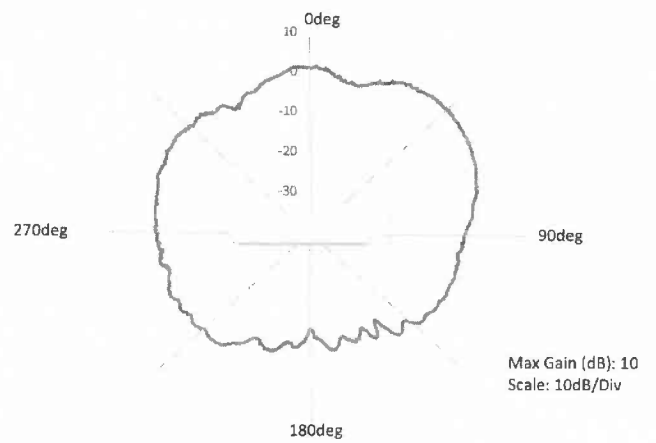


cnPilot™ e410 and e600 Indoor Wi-Fi Access Points

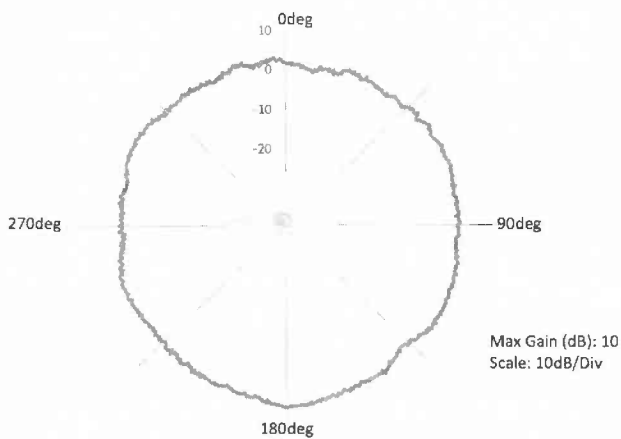
Antenna Patterns - e600



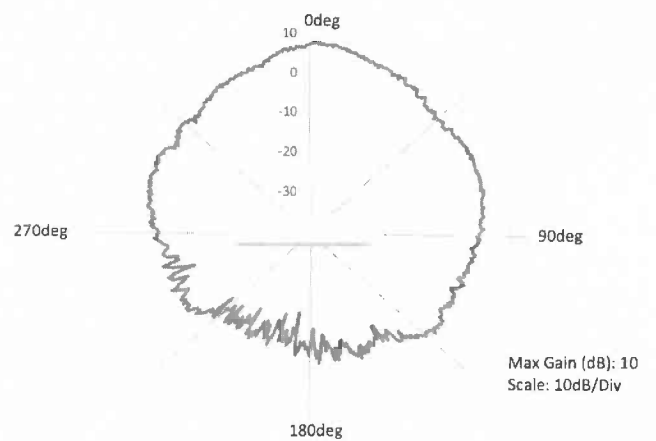
2.4 GHz Azimuth



2.4 GHz Elevation

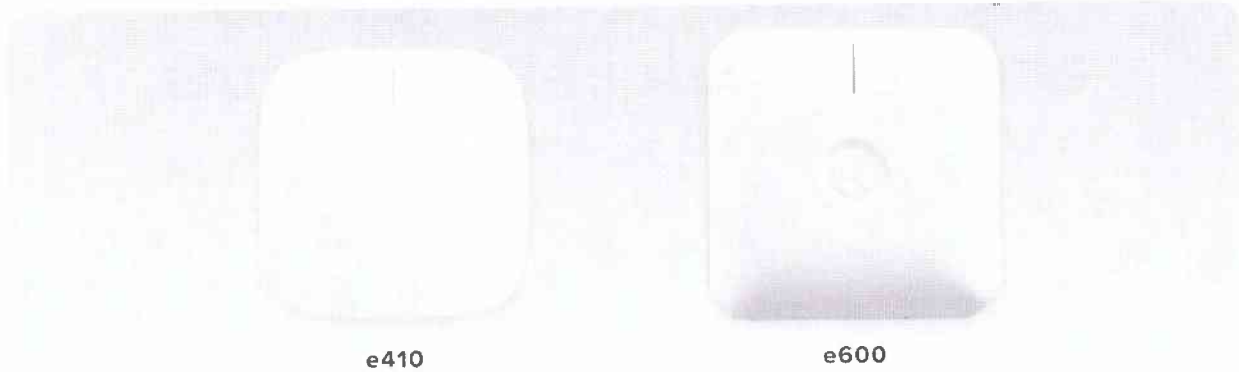


5 GHz Azimuth



5 GHz Elevation

cnPilot™ e410 and e600 Indoor Wi-Fi Access Points


e410
e600

e410 Ordering Information

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

e600 Ordering Information

PL-E600X00A-US	cnPilot e600 Indoor (FCC) 802.11ac Wave 2, 4x4, AP
PL-E600X00A-EU	cnPilot e600 Indoor (EU) 802.11ac Wave 2, 4x4, AP
PL-E600X00A-RW	cnPilot 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.

2. 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.

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cnPilot™ e505, e510, e700 Outdoor Wi-Fi Access Points

5. 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.

e505	e510	e700
802.11 a/b/g/n/ac Wave 2		
Omni-directional antenna coverage		
IP67 rated housing, UV protection		
5 GHz (2x2), 2.4 GHz (2x2)		5 GHz (4x4), 2.4 GHz (2x2)
-30°C to 60°C	-40°C to 65°C	-40°C to 60°C
Small size hides easily	Shock & Vibration rail certified	15 W power out on GE2

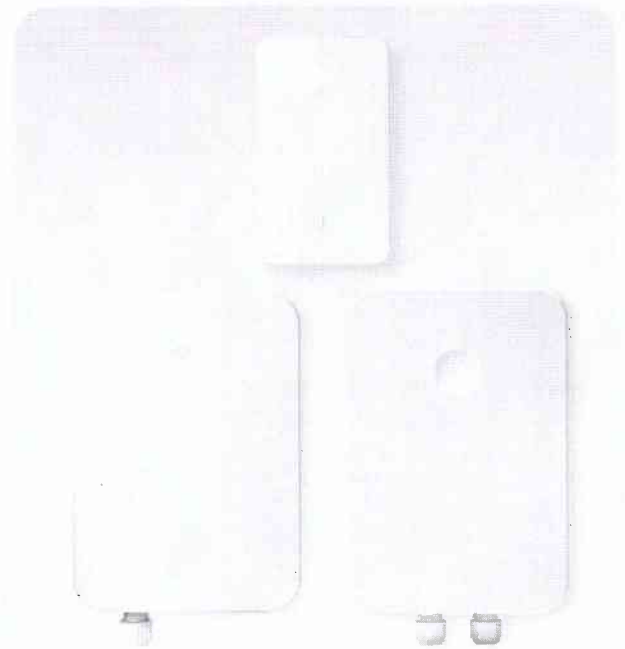


CLOUD-MANAGED ACCESS

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 -40°C to 65°C 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

	e505	e510	e700
US-FCC	Ch 1–11, 36–64, 100–140, 149–165	Ch 1–11, 36–64, 100–140, 149–165	Ch 1–11, 36–64, 100–140, 149–165
ISED Canada	Ch 1–11, 36–64, 100–116, 149–165	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	Ch 1–13, 36–64, 100–140
ROW	Ch 1–13, 36–64, 100–144, 149–173 <i>individual country limits apply</i>	Ch 1–13, 36–64, 100–144, 149–173 <i>individual country limits apply</i>	Ch 1–13, 36–64, 100–144, 149–173 <i>individual country limits apply</i>
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 11 , SU-MIMO / MU-MIMO: 2 streams		
Wi-Fi	802.11 a/b/g/n/ac	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 radio: 300 Mbps 5 GHz radio: 867 Mbps	2.4 GHz radio: 400 Mbps 5 GHz radio: 867 Mbps	2.4 GHz radio: 400 Mbps 5 GHz radio: 1733 Mbps
Ethernet	1 IEEE Gigabit, auto sensing	1 IEEE Gigabit, auto sensing	2 IEEE Gigabit, auto sensing 1 port with Cambium 30 V or 48 V PoE Out
1. Antenna	Internal omni-directional 2.4 GHz: 5 dBi 5 GHz: 5 dBi	Internal omni-directional 2.4 GHz: 8 dBi 5 GHz: 9 dB	Internal omni-directional 2.4 GHz: 8 dBi 5 GHz: 8 dBi
Max EIRP	2.4 GHz: 26 dBm 5 GHz: 26 dBm	2.4 GHz: 32 dBm 5 GHz: 34.5 dBm	2.4 GHz: 33 dBm 5 GHz: 36 dBm
(EIRP limited by country regulations)			
10. 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	Integrated pole, wall mount	Integrated pole 38 mm and 76 mm (1.5 in and 2.99 in) , wall mount

cnPilot™ e505, e510, e700 Outdoor Access Points

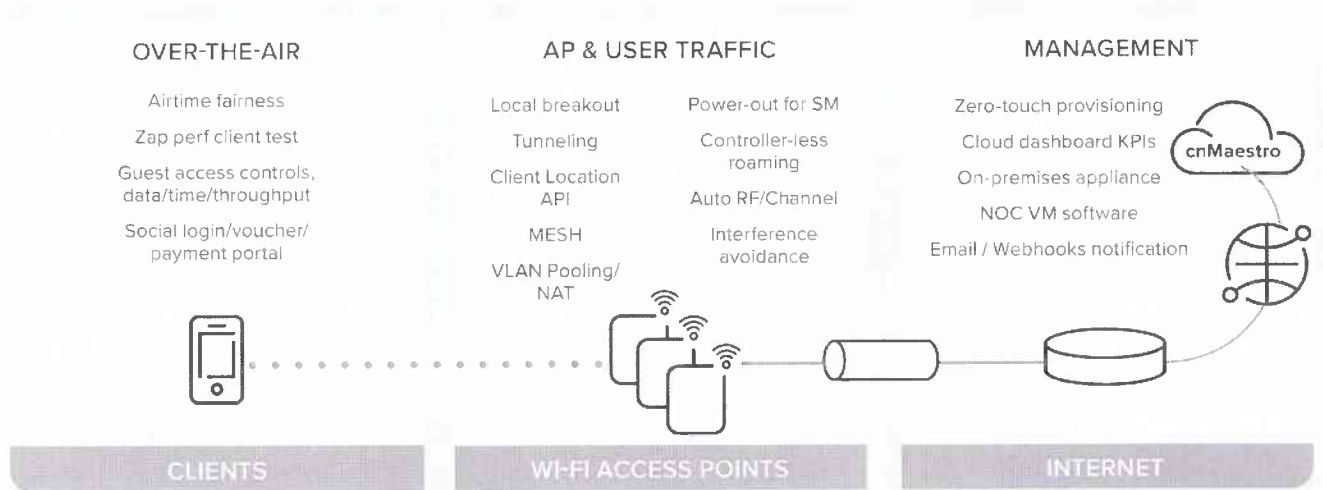
Access Point Specifications cont'd

	e505	e510	e700
Dimensions	227 mm x 130 mm x 70 mm (8.94 in x 5.12 in x 2.76 in)	290 mm x 208 mm x 78 mm (11.32 in x 8.19 in x 3.07 in)	315 mm x 215 mm x 66 mm (12.4 in x 8.46 in x 2.6 in)
Weight	800 g (1.76 lbs)	1,100 g (2.43 lbs)	1,700g (3.75 lbs)
LED	Single Tri-color LED (amber, blue, green)	Single Tri-color LED (amber, blue, green)	Two single color status LED
Physical Lock	Kensington slot	Kensington slot	Kensington Key Slot
Ambient op temp	-30°C to 60°C	-40°C to 65°C	-40°C to 65°C
Storage temperature	-40°C to 70°C	40°C to 70°C	-40°C to 70°C
Humidity	95% RH non-condensing	95% RH non-condensing	95% RH non-condensing
Wind Resistance	-	224 kph (139 mph)	-
LTE Band filter	-	38, 40	38, 40
3. MTBF	116k hours	420k hours	700k hours
Overvoltage Protection	-	-	Category 1
Certifications	802.11u, Hotspot 2.0 FCC, ETSI, CE, EN 60601-1-2, IEC60950 UL2043	Wi-Fi Alliance 80211a/b/g/n/ac, Passpoint 2.0 FCC, ETSI, CE, EN 60601-1-2, IEC60950 UL2043	Wi-Fi Alliance 802.11a/b/g/n/ac, Passpoint 2.0 FCC, ETSI, CE, EN 60601 1 2, IEC60950 UL2043

cnPilot™ e505, e510, e700 Outdoor Access Points

4. Management

Adaptive cnPilot Network



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	Hotspot 2.0	Hotspot 2.0 / Passpoint 2.0
Deployment	Monetized guest portal with design tools	Accounting	RADIUS accounting, load balancing AAA servers, Dynamic Authorization COA, DM
Services	Monetized, cloud managed guest portal with design tools	Service Availability	Critical network resource monitor with SSID shutdown
Captive Portal	<p>Portal features hosted on cnMaestro:</p> <ul style="list-style-type: none"> 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 <p>Portal features hosted on the AP:</p> <ul style="list-style-type: none"> supports 3rd party external portal RADIUS/LDAP/Click Through authentication Data Rate/Throughput limits, Time duration 		

cnPilot™ e505, e510, e700 Outdoor Access Points

Network Specifications

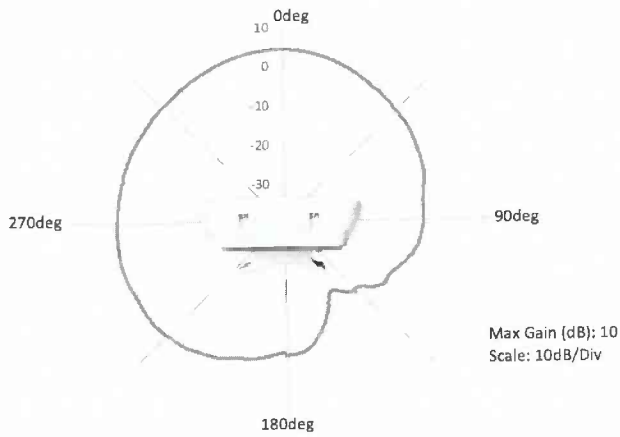
6.	Authentication Encryption	802.1x EAP-SIM/AKA/AKA/FAST, EAP-PEAP, EAP-TTLS, EAP-TLS/MSCHAPv2, PEAPv0/PEAPv1 MAC authentication to local database (on AP, on Controller) or external RADIUS. MAC auth fallback to guest portal	Network	NAT, NAT logging firewall, DOS protection, L2/L3/DNS ACL, DHCP server, DHCP Relay option 82 LLDP, IGMP v1, v2 VLAN Pooling, RADIUS attribute VID VLAN per SSID, per user Integrated WIDS (wireless intrusion detection)
	Scheduled WLAN	On/off by day, week, time of day		
	APIs	RESTful management and statistics API Presence location API Splunk WebSocket integration, WebSocket DNS, NAT, TCP connection log	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, radio self test network assurance, 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		

Standards

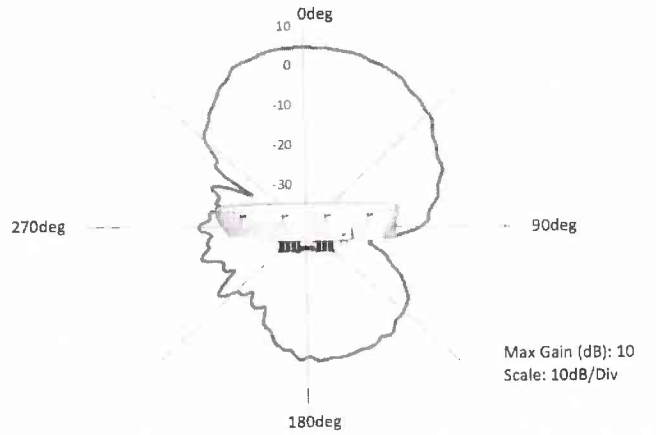
Wi-Fi Protocols	VHT MCS rates, 256-QAM, HT20/40/80 MHz Transmit beamsteering, Airtime Fairness, Packet Aggregation (AMSDU, AMPDU) RIFS, STBC, LDPC, 802.11k, 802.11v, 802.11i MIMO Power Save, MRC, BPSK, QPSK, CCK, DSSS, OFDM. IEEE 802.11d/e/h/i/k/r/u/v 7., 8., 9.
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cnPilot™ e505, e510, e700 Outdoor Access Points

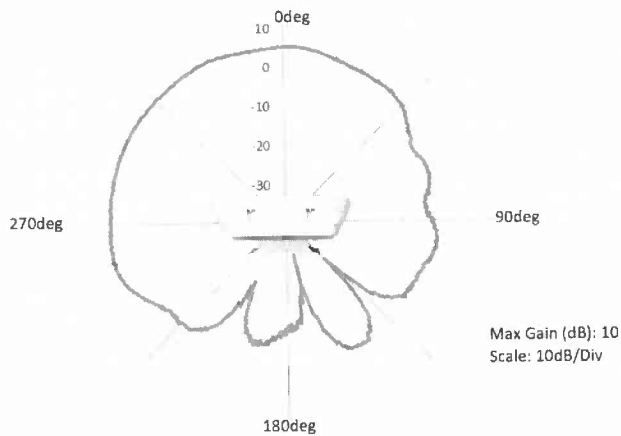
Antenna Patterns - e505



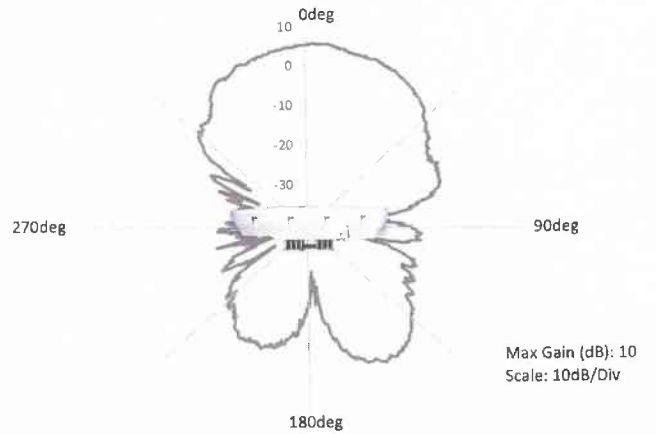
2.4 GHz Azimuth



2.4 GHz Elevation



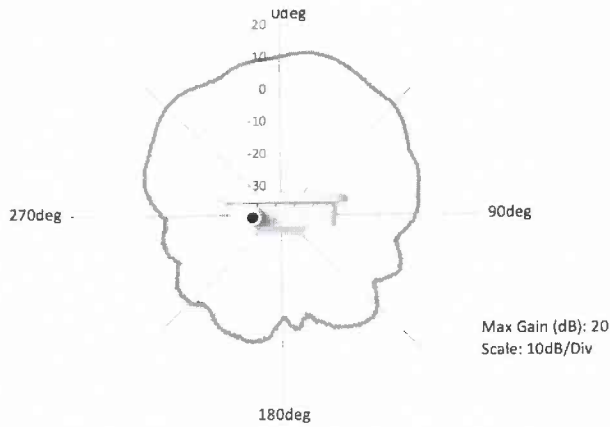
5 GHz Azimuth



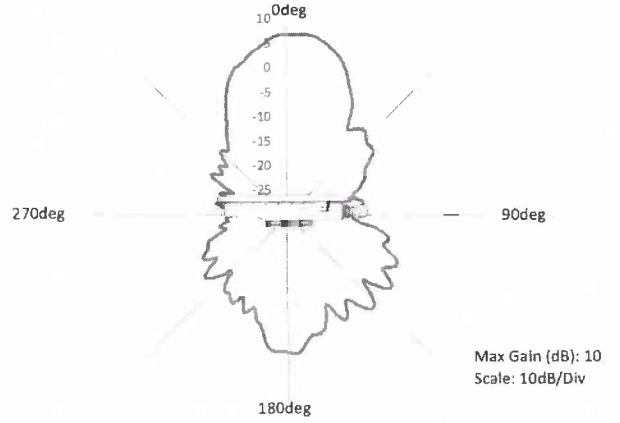
5 GHz Elevation

cnPilot™ e505, e510, e700 Outdoor Access Points

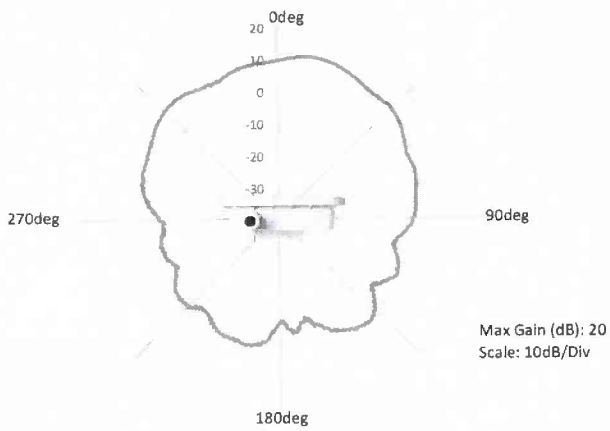
Antenna Patterns - e510



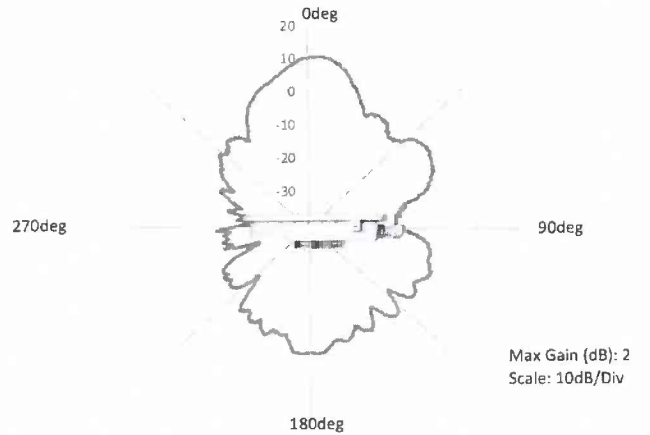
2.4 GHz Azimuth



2.4 GHz Elevation



5 GHz Azimuth



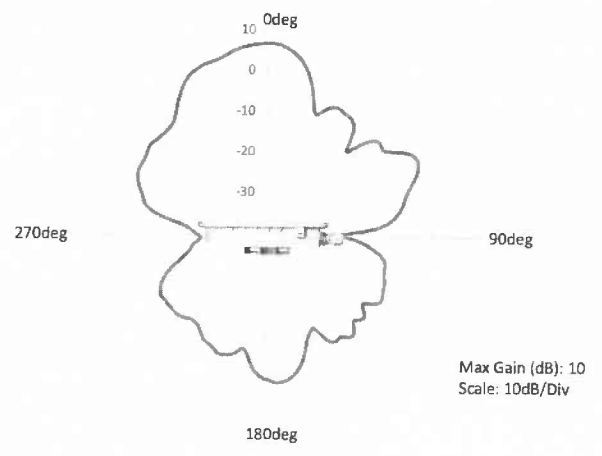
5 GHz Elevation

cnPilot™ e505, e510, e700 Outdoor Access Points

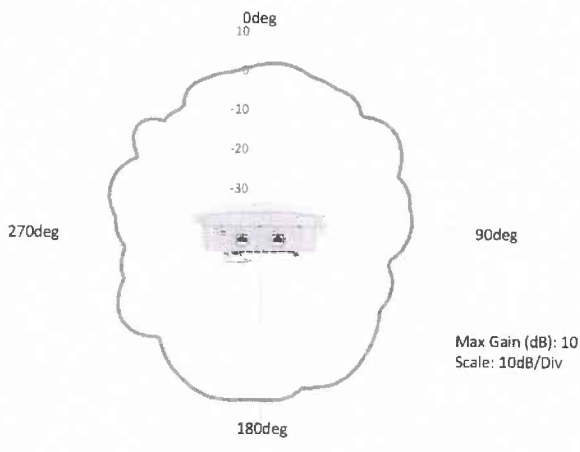
Antenna Patterns - e700



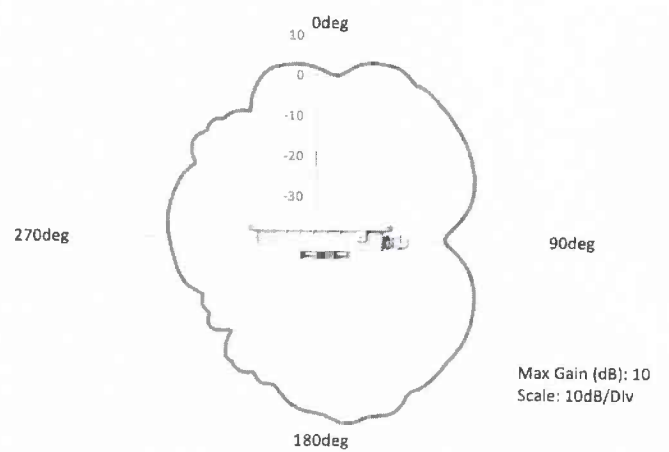
2.4 GHz Azimuth



2.4 GHz Elevation



5 GHz Azimuth



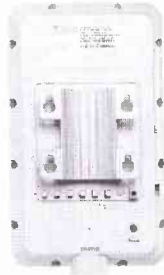
5 GHz Elevation

cnPilot™ e505, e510, e700 Outdoor Access Points

e505



Front



Back

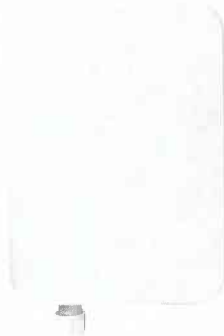


Side

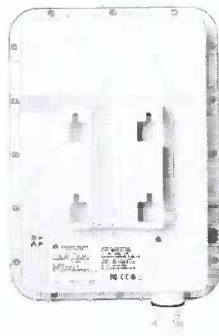


Bottom

e510



Front



Back

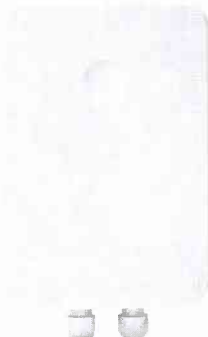


Side

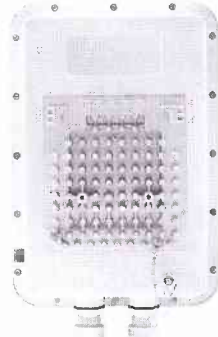


Bottom

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.

2. LIMITED WARRANTY

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