

Dodatok č. 1 k zmluve o dielo zo dňa 19/10/2018
Uzatvorená podľa ust. Par. 536 a nasl. Obchodného zákonníka
(ďalej len „zmluva“)

I. Zmluvné strany

SmartIntegra group s.r.o.,
Jókaiho 14, 945 01 Komárno, Slovakia
IČO: 45 442 452, IČ-DPH: SK2023011936, číslo účtu: SK58 0200 0000 0035 9981 2657
zastúpená pánom Ing. Tiborom Plechom, majiteľom firmy
(ďalej len „zhotoviteľ“)

a

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Kontaktná osoba: Anna Sušoliaková – starostka obce Šrobárová
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(ďalej len „Objednávateľ“)

II. Predmet dodatku č. 1 k zmluve o dielo:

Dodatok č. 1 k vyššie uvedenej zmluve sa dopĺňa o nasledovné prílohy:

1. Test splnenia technických parametrov (TSTP) v rámci "Wifi pre Teba" rozšírený o konkrétne časti technických listov zodpovedajúcich relevantnému parametru
2. Podrobný popis prístupového bodu (AP) s väzbou na finančné limity
3. Technické listy dodávaných aktívnych prvkov (DataSheet)
4. Názov prístupových bodov:

Externý prístupový bod: Cambium Networks Ltd. - cnPilot E500 Access Point

Interný prístupový bod: Cambium Networks Ltd. - cnPilot E410 Access Point

„Dodatok sa uzatvára bez nového VO na základe splnenia podmienky par. 18 ods. 1 písmeno c) zákona Č. 343/2015 Z.Z. o verejnom obstarávaní a o zmene a doplnení niektorých zákonov.“

V Šrobárovej, dňa 14.11.2019

V Šrobárovej, dňa 14.11.2019



za zhotoviteľa

Príloha č. 1: Podrobný popis prístupového bodu (AP) s väzbou na finančné limity

Položka	Merná jednotka	Počet jednotiek	Jednotková cena (v EUR bez DPH)	Vysúťažená suma celkom (v EUR s DPH)	Limity podľa Prírúčky pre oprávnenosť výdavkov PO7 OPIL pre dopytovo orientované projekty „WiFi pre Teba“ (max. suma za 1 AP v EUR s DPH)
Externý prístupový bod (AP) č. 1 - 8:					
Pristupový bod - Cambium networks cnPilot E500	ks	8	710,00	6 816,00	(nevypĺňa sa)
Inštalácia a konfigurácia AP	hod	15	80,00	1 440,00	(nevypĺňa sa)
Kabeláž, projekčná činnosť, realizačná dokumentácia, dokumentácia skutočného vyhotovenia, odovzdávací protokol	súbor	8	335,50	3 220,80	(nevypĺňa sa)
Spolu					
				11 476,80	(nevypĺňa sa)
Interný prístupový bod (AP) č. 1:					
Pristupový bod - Cambium networks cnPilot E410	ks	1	490,00	588,00	(nevypĺňa sa)
Inštalácia a konfigurácia AP	hod	2	80,00	192,00	(nevypĺňa sa)
Kabeláž, projekčná činnosť, realizačná dokumentácia, dokumentácia skutočného vyhotovenia, odovzdávací protokol	súbor	1	180,00	216,00	(nevypĺňa sa)
Spolu					
				996,00	(nevypĺňa sa)
Celkom					
				12 472,80	

Test splnenia technických parametrov (TSTP) v rámci "Wifi pre Teba"

TSTP aktu pre žiadateľa ako podklad pre špecifikáciu riešenia spĺňajúcu minimálne technické parametre požadovaných výhov.

Technické parametre riešenia sú navrhnuté v súlade so schválenou štúdiou uskutočniteľnosti <https://media.sinnon.com/ekb/04a69e9a/8c9d7d707e470e-a1bd-4a7c333d4537at=document>, a musia spĺňať požiadavky Robustného, Spoľahlivého a Bezpečného produktu, ktorý poskytne občanom bezplatný prístup na internet prostredníctvom WiFi pripojenia.

1. Robustný: definuje minimálne technické parametre Prístupového bodu (Access point), resp. ostatného HW vybavenia,
2. Spoľahlivý: definuje minimálne podmienky pre poskytnutie kvalitného internetového pripojenia,
3. Bezpečný: definuje minimálne podmienky pre sieťové a fyzické bezpečnosti.

Upozornenie: výsledky tohto testu sú iba výkonná pre potreby žiadateľa a nie sú zárukou výsledku v procese schvaľovania žiadostí o NFP.

Otázka č.	Znenie otázky	Odkaz na relevantnú časť Technických Riešení (Dovetňá v prípade potreby) a/alebo technických riešení, resp. zdroj informácií o zdrojov zodpovedajúci konkrétnemu parametru	Odpoveď (po kliknutí na bunku vyberte jednu z možností)
1.	Kompatibilné dvojasnové WiFi zariadenia (2.4GHz - 5 GHz), ktoré sú certifikované pre európsky ETS?	časť Frequency Bands https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
2.	Žiadny výklus použitých produktov vyšší ako 5 rokov?	časť MTBF https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
3.	Minimálna dĺžka medzery poruchami (MTBF) minimálne 5 rokov?	časť MTBF https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
4.	Môže byť certifikácia nariadenia pre stabilitu, monitoringu a konfigurácie siete (single point of management)?	časť WiFi feature/management center certifikácia a iCloud management https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
5.	Titul a „Jed. 11ac Wave 1, Institute of Electrical and Electronics Engineers“ (IEEE) štandardu?	časť štandardu https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
6.	Podpora IEEE 802.11ac IEEE štandardu?	časť WiFi feature/wireless security https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
7.	Podpora IEEE 802.11n IEEE štandardu?	časť štandardu https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
8.	Podpora IEEE 802.11k IEEE štandardu?	časť štandardu https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
9.	Podpora IEEE 802.11v IEEE štandardu?	časť štandardu https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
10.	Schopnosť AP obsluhovať a spracovávať 50 rôznych užívateľov bez zníženia kvality služby?	časť Concurrent client (max. 256) https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
11.	Minimálne 2x2 MIMO (multiple-input/multiple-output)?	MIMO, 2Streams https://cdn.cambiumnetworks.com/wp-content/uploads/2018/08/SS_enPkt_e500_04052019.pdf	Áno
12.	Titul a Hotspot 2.0 (Passport WiFi Alliance certification program)?	áno vo veľkosti WiFi CERTIFIED Passport™ Device Directory https://www.wi-fi.org/product-finder-results?keywords=cambium	Áno
13.	Súčasťou dokladky bude projektová dokumentácia ktorá bude obsahovať detailné zapojenie aktívnych prvkov siete a IP adresným plánom, Simuláciu pokrytia prostredím. Navrhne spoločnú politiku, technické body aktívnych prvkov, funkčný popis a vysvetlenie obmedzení politiky a smerníc týmto bodom?		Áno

Všetky otázky sú zodpovedané

Minimálne technické podmienky sú zadané.

Počet odpovedí "nie"

0

Počet nezodpovedaných otázok

0

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/8c85cf2d-700e-47ce-a1b0-4cbf3334b453?tab=documents> a musia spĺňať požiadavky Robustného, Spoľahlivého a Bezpečného produktu, ktorý poskytne občanom bezplatný prístup na internet prostredníctvom Wifi pripojenia.

1. Robustný: definuje minimálne technické parametre Prístupového bodu (Access pointu), resp. ostatného HW vybavenia,
2. Spoľahlivý: definuje minimálne podmienky pre poskytnutie kvalitného internetového pripojenia,
3. 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)	(po kliknutí na bunku vyberie jednu z možností)
1.	Kompaktné dvojbásové WiFi zariadenia (2,4GHz - 5 GHz), ktoré sú certifikované pre európsky trh?	časť Frequency Bands https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
2.	Životný cyklus použitých produktov vyšší ako 5 rokov?	časť MTBF https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
3.	Stredná doba medzi poruchami (MTBF) minimálne 5 rokov?	časť MTBF https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
4.	Možnosť centrálného manažmentu pre riadenie, monitoring a konfiguráciu siete (single point of management)?	časť WiFi features/management modes centrálny a aj cloud management https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
5.	Súlad s „802.11ac Wave 1, Institute of Electrical and Electronics Engineers“ (IEEE) štandardom?	časť standards https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
6.	Podpora 802.1x IEEE štandardu?	časť WiFi features/wireless security https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
7.	Podpora 802.11r IEEE štandardu?	časť standards https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
8.	Podpora 802.11k IEEE štandardu?	časť standards https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
9.	Podpora 802.11v IEEE štandardu?	časť standards https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
10.	Schopnosť AP obsluhovať naraz aspoň 50 rôznych užívateľov bez zníženia kvality služby?	časť Concurrent client (max. 256) https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
11.	Minimálne 2x2 MIMO (multiple-input-multiple-output)?	MIMO, Streams https://cdn.cambiumnetworks.com/wp-content/uploads/2017/05/SS_cnPilot_e410_03212019-1.pdf	Áno
12.	Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program)?	áno vid prílohu WiFi CERTIFIED Passpoint™ Device Directory https://www.wi-fi.org/product-finder-results?keywords=cambium	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 vycbrazenie obsahu hotspot portálu s umiestneným logom?		Áno

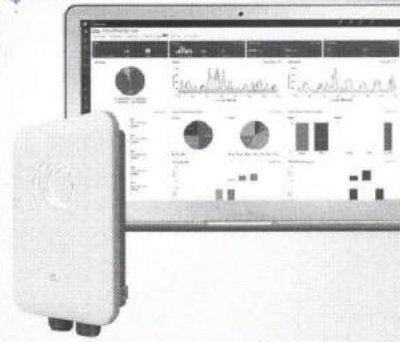
Všetky otázky sú zodpovedané

Minimálne technické podmienky sú zadefinované.

Počet odpovedí "nie" 0
 Počet nezodpovedaných otázok 0

Pilot e500 Outdoor Omni

802.11ac Outdoor Wi-Fi Access Point



Omni coverage for Enterprise campuses, Public Wi-Fi, Hospitality, Educational institutions, Industrial campuses or just about any demanding outdoor environment requiring cost-effective, controller managed WLAN Access Points.

HIGHLIGHTS

Operational superiority - Supporting 256 max concurrent client associations, 16 SSIDs, WPA-2 encryption, Dynamic VLANs, DFS channels, Access control lists (ACL), zero touch provisioning and more, the 802.11ac e500 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 at the same time.

Wireless Backhaul Integration – the aux PoE port on the e500 offers PoE out eliminating the need for a second power line – perfect for powering on a standard 802.3af camera, or powering on Cambium's PMP450 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 e500 can store two versions of the software and if needed fall back to a working operational software, 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
- Omni coverage
- UV rated IP-67 enclosure
- Operating Temp: -30C to +60C
- Electrical heater for cold start
- Ruggedized - ESD protection, Industrial grade components
- Packaged with wall mount brackets
- Special LTE coexistence filters
- Light weight 881g

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
- RESTful APIs, Reporting.
- Integrated troubleshooting: Wi-Fi APs, Clients & Cambium SMs
- Available in Cloud or as On-premises (NOC) Virtual controller

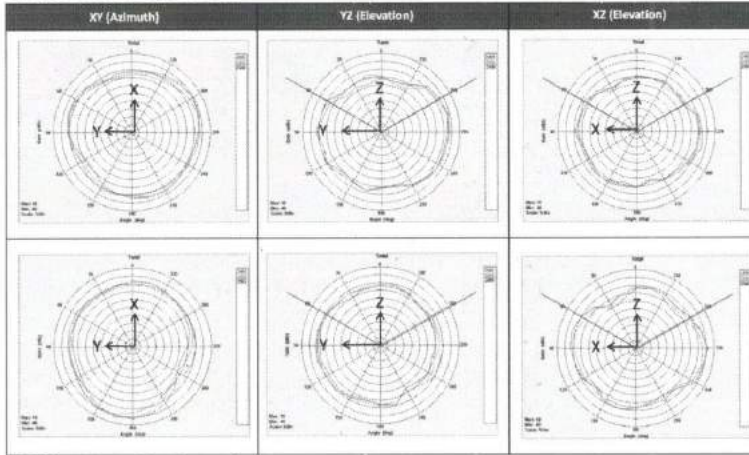
SPECIFICATIONS

Access Point Specifications	
Standards	IEEE 802.11a/b/g/n/ac IEEE 802.11d/e/h/i/l/k/r/u/v/w Modulation: BPSK, QPSK, CCK, 16/64/256-QAM Radio modes : DSSS, OFDM
MIMO, Streams	2x2:2 MIMO
Channel Width	20MHz, 40MHz, 80MHz
Concurrent Clients	256
SSIDs	16
Antenna	Dual polarized, Omnidirectional, Integrated
Transmit Power (conducted total)	2.4GHz : 29dBm 5GHz : 28dBm
Antenna Gain	2.4GHz : 5dBi 5GHz : 5dBi
Max Data Rate	2.4GHz : 300Mbps 5GHz : 867Mbps
LED	Two multi-color software controlled LEDs
Interference Mgmt	Hardware LTE Filtering
Ethernet Ports	Two auto-sensing auto MDIX Gigabit Ethernet (10/100/1000 Mbps) RJ45 Ports
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
Wi-Fi Alliance	Wi-Fi certified a,b,g,n,ac WPA2 – Enterprise, Personal WMM, Passpoint
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
Power Supply	802.3af PoE Injector, or PoE switch, 802.3at or PoE+ if using PoE-Out Aux port.
Dimensions	30 x 20.4 x 6.5 cm (11.8 x 8 x 2.55 inch)
Weight	881 g (1.94 lb)
Operating Temperature	-30°C to +60°C (-22°F to +140°F)
Operating Humidity	5% to 95% non-condensing
Power Consumed	13W (max, without PoE-out) 8W (typical)
Secure Mounting	Kensington Key Slot
Environment Rating	IP67
MTBF	2,331,610 Hours
PoE-Out	Aux Port supports Cambium and 802.3af modes
Reset Button	Supported
Certifications	FCC, CE, IC, UL, EN60601-1-2 (Medical EMC), WEEE/RoHS compliance
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)
RF Management	AutoRF automatically manages channel and power
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.
Rate Limiting	Per-client, Per-WLAN static and dynamic rate limiting
Client Isolation	On AP, Network-wide.
Fast Roaming	802.11r, Opportunistic Key Caching, Enhanced Roaming
Airtime Mgmt	Airtime Fairness, Band Steering, Band Balancing
AAA Support	RADIUS Authentication, Accounting, Dynamic Authorization (CoA, DM), Server failover, load-balancing
QoS	802.11e/WMM QoS. DSCP/ToS mapping.
Ethernet (L2) Services	802.1p/802.q, RADIUS assigned VLAN, VLAN per SSID, VLAN pooling, LLDP, IGMP Snooping (v1/v2/v3)
Mesh	WDS Mesh with Single and Multiple radio hops.
Network Services	NAT, DHCP Server
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)
Dynamic SSID Service	By time/date, by monitored host.
MAC Authentication	On-AP MAC filtering list. On-Controller MAC filtering list. RADIUS MAC Authentication. MAC Authentication fallback to Captive Portal
Firewall	Layer-2, Layer-3, DNS ACL, DoS Attack Protection.
3G/4G/LTE Offload	Passpoint (Hotspot 2.0)
DHCP Relay	Supported, with Option-82 customization
NMS Monitoring	SNMP v1, v2c, v3
Client APIs	Client Presence/Location API DNS, NAT and TCP Connecting Logging
Time Synchronization	Auto (from controller), NTP
Troubleshooting Tools	Packet Capture, Spectrum Analyzer, Ping, Traceroute, Syslogs
Traffic Tunnels	L2TP, L2oGRE, PPPoE

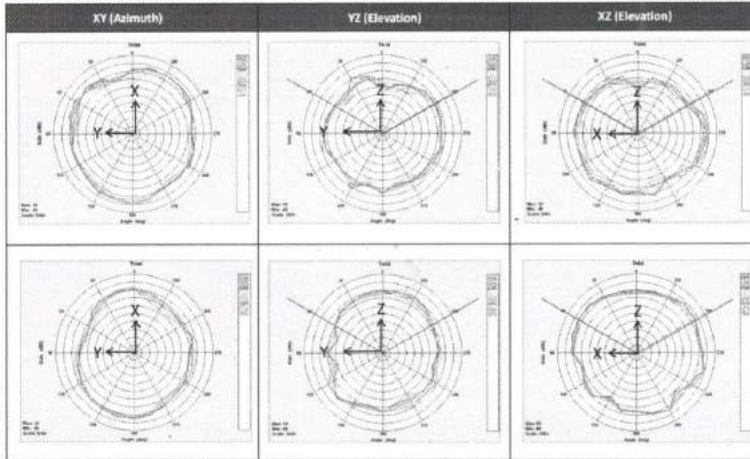
SPECIFICATIONS

2D Gain Patterns

2.4GHz : Antenna1, Antenna2



5GHz: antenna 3, antenna 4



E500 ORDERING INFORMATION: CNPILOT OUTDOOR E500

Regulatory Model Number (common to all SKUs): C000100P500A

Sales part #

Region

PL-E500XXYA-<US/EU/CA/IL/JP/EG/LK/RW>

XX = if this position has a two-digit country code, then That SKU includes a country specific AC line cord
 Y = if this position has a "C", then that SKU includes a PoE Injector and localized AC line cord
 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

PL-E500NPSA-RW

e500 without a PoE injector. Available in RoW model

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

cnPilot e410 Indoor

802.11ac Wave 2 Dual Band 2x2
Indoor Access Point



Future proof your indoor deployments with the compact, low profile 802.11ac Wave 2 Multi-user MIMO (MU-MIMO) beamforming, high-speed e410 Enterprise access point – perfect for schools, malls, hotels and resorts (Hospitality), coffee shops, Multi-dwelling units (MDUs), or any indoor environment that needs reliable, high performance access points.

CONTROLLER MANAGED + AUTONOMOUS

Managed by Cambium's cnMaestro™ cloud controller or On-premises controller, the cnPilot e410 management includes:

- Zero touch onboarding and configuration
- Inventory tracking & Monitoring
- Mass Configuration & Upgrade
- Dashboard views with Alarms
- Troubleshooting
- Hierarchical device organization

CONTROLLER-LESS ROAMING. POWERFUL SIMPLICITY

The e410 supports seamless roaming for up to 2,048 clients without needing a controller in the network! Hotspot portal hosting on the AP itself offers controller-less simplicity.

MONETIZE: VOUCHERS. SOCIAL LOGIN



Monetize your Wi-Fi service with cnMaestro's Guest Access capabilities that support splash page hosting, social login, temporary access vouchers, and payment gateway. These features – along with the ability to create time, rate and volume-limited traffic profiles – make the e410 ideal for hotels, coffee shops, schools, campgrounds, and office guest Wi-Fi.

SERVICE AWARE WLANS FOR BETTER USER EXPERIENCE

Make sure that every connection to an access point is successful. When service to a critical resource such as an external Gateway or AAA is down, the e410 can turn off the impacted SSIDs, enabling client devices to redirect to a functional, neighboring access point.

INDOOR/OUTDOOR WI-FI MESH. FLEXIBILITY

Indoor meshing across multiple e410s, or Indoor/ Outdoor meshing across both the Indoor e410 and the Outdoor Enterprise APs, offers convenient options to wirelessly expand Wi-Fi coverage.

COVERAGE, CAPACITY, SPEED

The plenum-rated e410 packs a max transmit power of 25 dBm and supports 20MHz, 40MHz as well as 80MHz channels on 5GHz – offering more flexibility than ever for both coverage and capacity. Throughput management via Airtime fairness, increased performance by Automatic RF management (AutoRF), and higher client device speeds from band steering ensure your network can adapt to dynamic client behaviors.

HIGH DENSITY, HIGHLY AVAILABLE

A capacity of 256 concurrent client associations and 16 SSIDs, along with dual on-board Active/Standby memory banks, ensure the e410 combines high density with high availability.

LICENSE-FREE HIGH PERFORMANCE AT A LOW PRICE

The 802.11ac wave 2 e410 comes with a free controller and no AP management license fees. No hidden charges. Affordable.

WARRANTY

Limited Lifetime Warranty (5 years).

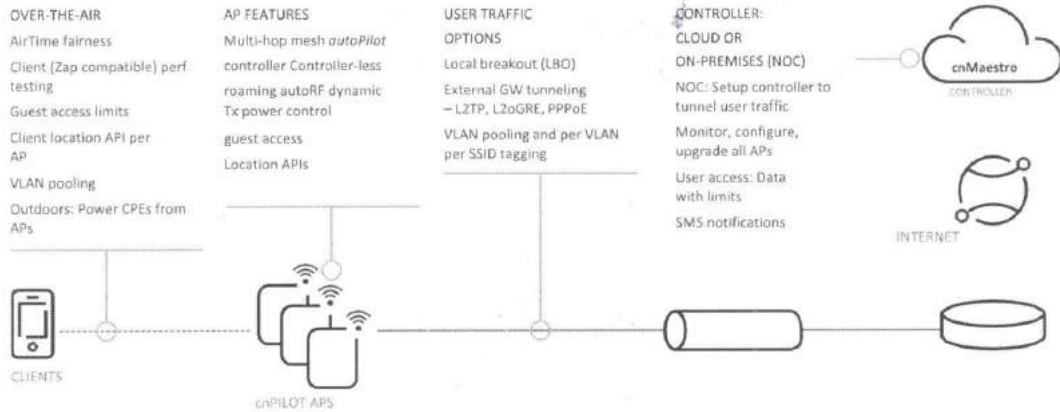
SPECIFICATIONS

Access Point Specifications			
Standards	IEEE 802.11a/b/g/n/ac Wave2 IEEE 802.11d/e/h/f/i/k/l/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. DFS bands operation subject to regulatory approval. Check SW release notes for details)</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 MU-MIMO	Power Supply	802.3af PoE Injector, or PoE switch powered
Beamforming	Supported	Dimensions	17.0 x 17.0 x 4.1 cm (6.7 x 6.7 x 1.61 inch)
Channel Width	20MHz, 40MHz, 80MHz	Weight	384 g (0.86 lb)
Concurrent Clients	256	Operating Temperature	0°C to +50°C (+32°F to +122°F)
SSIDs	16 SSIDs across 2 radios	Operating Humidity	10% to 95% non-condensing
Transmit Power <i>(conducted total)</i>	2.4GHz : 24dBm 5GHz : 25dBm	Power Consumed	13W (max)
Antenna Gain	2.4GHz : 5.25dBi 5GHz : 5.5dBi	LED	Tri-color software controlled LED
Max Data Rate	2.4GHz : 400Mbps 5GHz : 867Mbps	Secure Mounting	Kensington Key Slot
Antenna	Dual linear-polarized, Omnidirectional, integrated	MTBF	1,507,537 hrs at 50°C, 4,431,480 hrs at 25°C
Ethernet Ports	One auto-sensing Auto MDIX Gigabit Ethernet (10/100/1000 Mbps) RJ45 port	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), UL2043 Plenum WEEE/RoHS compliance
Wi-Fi Alliance	Wi-Fi certified a/b/g/n/ac WPA2 – Enterprise, Personal WMM, Passpoint	Mounting Options	Wall and Ceiling mount bracket. Desktop option. T-Bar bracket supporting: 14mm, 24mm, 38mm.

Wi-Fi Features			
Management Modes	cnMaestro cloud managed cnMaestro on-premises VM controller managed Autopilot (AP as controller for up to 32 AP network) 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	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 and DNS ACL DoS 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 Management	Airtime Fairness, Band Steering, Band Balancing	External 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, DNS check, Ping, Traceroute, Syslog, Speedtest.
Mesh	WDS Mesh with Single and Multiple radio hops.	Traffic Tunnels	L2TP, L2oGRE, PPPoE
Network Services	NAT, DHCP Server		

cnMaestro Controller and Network Manager			
Flexible Installation	Cloud, Virtual Machine both supported.	Integrated Guest Portal	Customizable Splash Pages SMS OTP Authentication Payment Gateways Support Voucher based authentication Social Login
Network Mgmt	Centralized Configuration, Statistics, Events, Firmware		
Hierarchical Views	Network topology mapped to sites and floors		
Floor Plans	Upload custom floor plans and map APs		
RESTful APIs	Interface with external systems		

THE ADAPTIVE cnPILOT NETWORK



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
 guest access
 Location APIs

USER TRAFFIC OPTIONS
 Local breakout (LBO)
 External GW tunneling – L2TP, L2oGRE, PPPoE
 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

ORDERING INFORMATION

The cnPilot e410 indoor 802.11ac wave 2 access point is available in models with and without PoE injectors.
 Regulatory model number (common to all skus): cnPilot™ e410 indoor

PART NUMBERS

PL-E410PUSA-US	cnPilot E410 Indoor (FCC, US cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PEUA-EU	cnPilot E410 Indoor (EU, EU cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PXXA-RW	cnPilot E410 Indoor (ROW, No cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PEUA-RW	cnPilot E410 Indoor (ROW with EU cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PUKA-EU	cnPilot E410 (EU with UK country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PUKA-RW	cnPilot E410 (ROW with UK country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PUSA-RW	cnPilot E410 (ROW with US country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PINA-RW	cnPilot E410 (ROW with India country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PCNA-RW	cnPilot E410 (ROW with China country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PANA-RW	cnPilot E410 (ROW with AUS/NZ cord) 802.11ac Wave 2, 2x2, with PoE Injector
PL-E410PBRA-RW	cnPilot E410 (ROW with Brazil cord) 802.11ac Wave 2, 2x2, with PoE Injector
PL-E410PARA-RW	cnPilot E410 (ROW with Argentina cord) Wave 2, 2x2, 802.11ac with PoE Injector
PL-E410X00A-US	cnPilot E410 Indoor (FCC) 802.11ac wave 2, 2x2, AP
PL-E410X00A-EU	cnPilot E410 Indoor (EU) 802.11ac wave 2, 2x2, AP
PL-E410X00A-RW	cnPilot E410 Indoor (ROW) 802.11ac wave 2, 2x2, AP
PL-E410X00A-JP	cnPilot e410 Indoor (Japan) 802.11ac wave 2, 2x2, AP
PL-E410X00A-IL	cnPilot e410 Indoor (Israel) 802.11ac wave 2, 2x2, AP
PL-E410X00A-LK	cnPilot e410 Indoor (Sri Lanka) 802.11ac wave 2, 2x2, AP
PL-E410X00A-CA	cnPilot e410 Indoor (Canada) 802.11ac wave 2, 2x2, AP
PL-E410X00A-EG	cnPilot e410 Indoor (Egypt) 802.11ac wave 2, 2x2, AP
PL-E410PJPA-JP	cnPilot e410 Indoor (Japan, Japan Type A cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PILA-IL	cnPilot e410 Indoor (Israel, Israel Type H cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PINA-LK	cnPilot e410 Indoor (Sri Lanka, India Type D cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PUSA-CA	cnPilot e410 Indoor (Canada, US Type B cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PEUA-EG	cnPilot e410 Indoor (Egypt, Europe Type C cord) 802.11ac wave 2, 2x2, AP with PoE Injector
N000900L017A	PoE Gigabit Injector for cnPilot E410, 15W Output at 56V

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