

Dodatok č. 1

k Zmluve o dielo č.033/2019

uzatvorený podľa § 536 a nasl. zákona č. 513/1991 Zb. v znení neskorších predpisov

I.

Zmluvné strany

- 1.1 **VJ control s.r.o.** so sídlom: Pltnícka 995/28, 013 03 Varín
Vladimír Staňo, konateľ
IČO:47225432
DIČ:2023816784
IČ DPH:SK2023816784
spoločnosť je zapísaná v OR Okresného súdu Žilina Oddiel: Sro Vložka číslo: 59621/L
Bankové spojenie: VÚB, a.s.
číslo účtu: SK58 0200 0000 0041 0532 5053

d'alej ako „*zhotoviteľ*“

a

1.2 **Obec Kotrčiná Lúčka**

so sídlom: Kotrčiná Lúčka 64, 013 02 Kotrčiná Lúčka
konajúca prostredníctvom: Jozef Žabka, starosta obce
IČO: 00321397
DIČ: 2020671906
Neplatca DPH
Bankové spojenie: VÚB, a.s.
číslo účtu: SK15 0200 0000 0016 4026 0753

d'alej ako „*objednávateľ*“

II.

Predmet dodatku

- 2.1 Zmluvné strany sa na základe vzájomnej dohody rozhodli uzatvoriť Dodatok č. 1 predmetom ktorého je doplnenie povinných príloh k Zmluve o dielo č.033/2019 a taktiež záväzok zhotoviteľa vybudovať sieť wifi access pointov zahrňujúcich minimálne technické požiadavky.
- 2.2 Dodávateľ sa zaväzuje vybudovať sieť wifi access pointov v obci Kotrčiná Lúčka zahrňujúcich minimálne technické požiadavky:
- * Životný cyklus použitých produktov vyšší ako 5 rokov
 - * Stredná doba medzi poruchami (MTBF) minimálne 5 rokov
 - * Možnosť centrálného manažmentu pre riadenie, monitoring a konfiguráciu siete (single point of management)
 - * Súlad s „802.11ac Wave I, Institute of Electrical and Electronics Engineers“ (IEEE) štandardom
 - * Podpora 802.1x IEEE štandardu
 - * Podpora 802.11r IEEE štandardu

- * Podpora 802.11k IEEE štandardu
- * Podpora 802.11v IEEE štandardu
- * Schopnosť AP obsluhovať naraz aspoň 50 rôznych užívateľov bez zníženia kvality služby
- * Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program),
- * 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

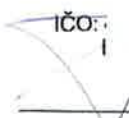
III.

Záverečné ustanovenia dodatku

- 3.1 Dodatok č. 1 tvorí neoddeliteľnú súčasť zmluvy.
- 3.2 Znenie ostatných častí zmluvy, ktoré nie sú zmenené Dodatkom zostávajú nezmenené.
- 3.3 Tento dodatok je vyhotovený v dvoch (2) rovnopisoch, pre každú zmluvnú stranu po jednom (1) rovnopise.
- 3.4 Zmluvné strany vyhlasujú, že si Dodatok č. 1 prečítali, jeho obsahu porozumeli a na znak súhlasu ho podpisujú.
- 3.5 Neoddeliteľnou súčasťou Zmluvy o dielo v znení Dodatku č. 1 sú prílohy:
 1. Test splnenia technických parametrov (TSTP)
 2. Podrobný popis prístupového bodu (AP)
 3. Technické listy dodávaných aktívnych prvkov

Vo Varíne dňa 19/03/2021

18-03-2021
V Kotrčinej Lúčke dňa


 IČO: 1
 VJ control s.r.o
 Vladimír Staňo, konateľ


 Obec Kotrčiná Lúčka
 starosta - Jozef Žabka

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.financia.gov.sk/studia/detail/8c95df2d-700a-47ca-a1b0-4cbf3334b453?tab=documents> a musia spĺňať požiadavky Robustného, Spofahlivého 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. Spofahlivý:** 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 (žadateľ uvedie predmetnú časť technických listov, resp. iného relevantného zdroja zodpovedajúceho konkrétnemu parametru)	Odpoveď (po kliknutí na bunku vyberte jednu z možností)
1.	Kompletné dvójásmenné Wifi zariadenia (2,4GHz - 5 GHz), ktoré sú certifikované pre európsky trh?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
2.	Životný cyklus použitých produktov vyšší ako 5 rokov?	7.2 Spôsob realizácie aktivít projektu	Áno
3.	Stredná doba medzi poruchami (MTBF) minimálne 5 rokov?	7.2 Spôsob realizácie aktivít projektu	Áno
4.	Možnosť centrálného manažmentu pre riadenie, monitoring a konfiguráciu siete (single point of management)?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
5.	Súlad s „802.11ac Wave 1, Institute of Electrical and Electronics Engineers“ (IEEE) štandardom?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
6.	Podpora 802.11n IEEE štandardu?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
7.	Podpora 802.11r IEEE štandardu?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
8.	Podpora 802.11k IEEE štandardu?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
9.	Podpora 802.11v IEEE štandardu?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
10.	Schopnosť AP obsluhovať naraz aspoň 50 rôznych užívateľov bez zníženia kvality služby?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
11.	Minimálne 2x2 MIMO (multiple-input-multiple-output)?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
12.	Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program)?	https://www.cambiumnetworks.com/products/wifionipilot-e500-enterprise-outdoor/	Áno
13.	Súčasťou dodávky bude: projektová dokumentácia ktorá bude obsahovať sieťové zapojenie aktívnych prvkov siete s IP adresným plánom, Simuláciu pokrytia prístroja, Merenie skutočného pokrytia, technické listy aktívnych prvkov, funkčný popis a vyobrazenie obsahu hotspot portálu s umiestneným logom?	7.2 Spôsob realizácie aktivít projektu	Áno

Všetky otázky sú zodpovedané

Minimálne technické podmienky sú zadefinované.

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

Príloha č. 1 Príručky pre prijímateľa DOP Wifi pre Teba - príloha k ŽoP: Podrobný popis prístupového bodu (AP) s väzbou na finančné limity

Položka	Memá jednotka	Počet jednotiek	Jednotková cena (v EUR bez DPH)	Vysútažená suma celkom (v EUR s DPH)	Limity podľa Príručky 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:	(nevypĺňa sa)			13999,99	1 500,00
rozpísať všetky nákladové položky daného AP, ktoré sú uvedené na faktúre:	(nevypĺňa sa)				
Outdoor prístupový bod 802.11ac, 2,4 + 5 GHz, 2x2 MIMO, vč. PoE injektoru, integrovaná OMNI anténa 5 dBi, 2x GE LAN port, napájanie PoE 802.3af/at, PoE OUT funkce priemer využitia signálu 100m	ks	10	330	3960	(nevypĺňa sa)
Montáž inštalácia Access point	ks	10	120	1440	(nevypĺňa sa)
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	4	250	1200	(nevypĺňa sa)
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	4	180	864	(nevypĺňa sa)
optický kábel	m	1500	1,6	2880	
PtP spoj dodávka a montáž	ks	4	250	1200	(nevypĺňa sa)
rozdávka	ks	5	238	1428	(nevypĺňa sa)
implementácia a ukončenie integrácia a riešenie programovanie školenie a uvedenie do funkčnosti	ks	1	456,66	547,99	(nevypĺňa sa)
dátový gigabitový kábel	m	400	1	480	(nevypĺňa sa)
Externý prístupový bod (AP) č. n:	(nevypĺňa sa)			0	1 500,00
rozpísať všetky nákladové položky daného AP, ktoré sú uvedené na faktúre:	(nevypĺňa sa)				
				0	(nevypĺňa sa)
				0	(nevypĺňa sa)
				0	(nevypĺňa sa)
Interný prístupový bod (AP) č. 1:	(nevypĺňa sa)			1000	1 000,00
rozpísať všetky nákladové položky daného AP, ktoré sú uvedené na faktúre:	(nevypĺňa sa)				
Indoor AP bod 802.11ac Wave 2, 2,4 + 5 GHz, 2x2 MIMO, vč. PoE injektoru, integrovaná OMNI anténa 4 dBi, 1x GE LAN port, napájanie PoE 802.3af využitie signálu 60m	ks	1	210	252	(nevypĺňa sa)
Montáž inštalácia Access point	ks	1	120	144	(nevypĺňa sa)
router board controller	ks	1	123,33	148	(nevypĺňa sa)
FTP drôt cat 5E	m	100	1	120	(nevypĺňa sa)
implementácia a ukončenie integrácia a riešenie programovanie školenie a uvedenie do funkčnosti	ks	1	135	162	(nevypĺňa sa)
rozdávka	ks	1	145	174	(nevypĺňa sa)
Interný prístupový bod (AP) č. n:	(nevypĺňa sa)				1 000,00
rozpísať všetky nákladové položky daného AP, ktoré sú uvedené na faktúre:	(nevypĺňa sa)				
				0	(nevypĺňa sa)
				0	(nevypĺňa sa)
				0	(nevypĺňa sa)
Celkom				14999,99	

cnPilotTM E410 Indoor

802.11ac wave 2 dual band 2x2 Indoor access point

The compact low profile 802.11ac Wave 2 Multi-user MIMO (MU-MIMO) beamforming, high speed E410 Enterprise access point future proofs your Indoor access point deployments and is perfect for Schools, Indoor public spaces, Malls, Hotels and Resorts (Hospitality), Coffee shops, Multi-dwelling units (MDUs) or just about any place indoor that needs reliable high performing access points



CONTROLLER MANAGED + AUTONOMOUS

Managed by Cambium's cnMaestroTM cloud controller or On-premises controller, the cnPilot E410 management includes:

- Zero touch onboarding • Inventory tracking • Monitoring
- Mass Configuration • Dashboard views with Alarms • Mass upgrade • Troubleshooting • Hierarchical device organization

CONTROLLER-LESS ROAMING. POWERFUL SIMPLICITY

The E410 supports seamless roaming for up to 1,000 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: cnMaestro's **Guest access** feature supports splash page hosting, social login and payment gateway. All built-in power packed features available right on the controller! These features along with the ability to create time, rate and volume limited traffic profiles along with vouchers for temporary guest access makes the E410 ideal for Hotels, Coffee shops, Campgrounds, and Office guest Wi-Fi.

SERVICE AWARE WLANS. BETTER USER EXPERIENCE

Nothing is more frustrating than connecting to an Access point, but not getting to the Internet! When connection 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 select a different working neighboring Access point.

INDOOR/OUTDOOR WI-FI MESH. FLEXIBILITY

Indoor meshing across multiple E410s or Indoor/Outdoor meshing across the Indoor E410 and the Outdoor E500 offers a convenient way to easily expand Wi-Fi coverage without wires.

COVERAGE, CAPACITY. SPEED

The plenum rated E410, packs a max transmit power of 25 dBm, and is DFS certified to make use of additional reserved 5GHz DFS channels, offering more flexibility than ever for both coverage and capacity. Throughput management via Airtime fairness, increased performance by Automatic channel scanning (ACS), and higher client device speeds from Band steering ensure your network can adapt to the dynamics of ever changing client behaviors.

HIGH DENSITY, HIGHLY AVAILABLE

A capacity of 256 max 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. ONE LOW PRICE.

The 802.11ac wave 2 E410 comes with a free controller, and no AP management license fees. No hidden charges. Affordable.

SPECIFICATIONS

ACCESS POINT SPECIFICATIONS

Standards	IEEE 802.11a/b/g/n/ac Wave 2 Others: 802.11 h/d/r/u/w/
MIMO Streams	2x2 MIMO streams
Range	180 m (650 Ft)
Concurrent Clients	256
Max Data Rates	1.3 Gbps (1,267 Mbps)
SSID	16 SSIDs across 2 radios
Antenna gain	4.55 dBi (2.4 GHz)/4.25 dBi (5 GHz)
Multi-Hop Mesh	Yes. Supported on Indoor & Outdoor access points. Mesh auto-recovery supported
Polarization	Dual-linear
Antenna Coverage	Omni (360°)

Ethernet Ports	One (1) x 1 Gigabit Ethernet (10/100/1000 Mbps)
Frequency bands	2.4 GHz: 2400-2484 MHz 5 GHz: 5150-5850 MHz with DFS band support
Power Supply	Standard 802.3af injector (supplied) or any PoE switch
Power Consumed	13W (max)
Dimensions	170 x 170 x 41 mm (17 x 17 x 4.1 cm)
Weight	384grams (0.384kg)
Temperature	0°C to +50°C
LED	Single LED window with tri color (Amber, Blue, Green) display
Max TX Power	+25 dBm
Physical Lock	Kensington key hole

WI-FI FEATURES

Controller modes	- Autonomous Controller-less operations (E.g.: roaming) - Cloud Managed - On-premise virtualized controller
Secure WLAN	WPA-TKIP, WPA2 AES, 802.1x 802.11w (Protected Management Frames)
Hotspot 2.0/Passpoint	Yes
Captive Portal/ Guest Access	- cnMaestro Controller - Stand-alone AP based - Redirection to external RADIUS Server - Active Directory Integration
Authentication	Secure Web page, RADIUS based 802.1x including EAP-SIM/AKA, EAP-PEAP, EAP-TTLS, and EAP-TLS MAC authentication (local database or External RADIUS server)
Accounting	Yes, Supports RADIUS based accounting to multiple AAAs
Scheduled SSID	Turn SSID ON/OFF on a daily/weekly/time of day basis
VLAN	Dynamic VLAN assignment from RADIUS server. VLAN per SSID per user, VLAN load balancing
Data Limiting	Dynamic rate limiting of client traffic per SSID & per client
Subscriber QoS	WMM
Client Isolation	Yes
Controller-Less Fast Roaming	Yes. 802.11r, Opportunistic Key Caching supports Enhanced roaming Disconnect for sticky clients
Airtime Fairness	Yes
Meshing	Multi-hop meshing supported (3)

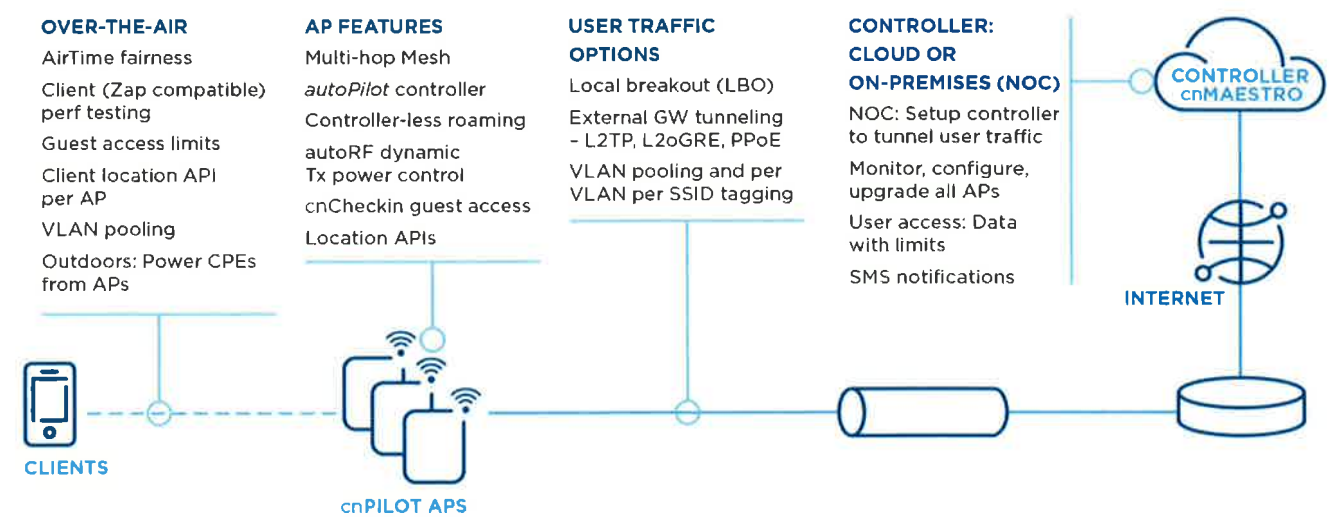
ACS: Automatic Channel Selection	Yes. Set at start or run periodically
NAT	Yes
DHCP Server	Yes
Firewall	Yes. NAT logging
ACL, DNS-ACL	Yes. L2, L3 or DNS based access control
Band Steering	Yes
Band Balancing	
Airtime Fairness	Yes
Tunneling	- L2TP - L2oGRE - PPPoE
Tools	- Packet capture - Wireless Sniffer - IP connectivity - Tech support (logs) - Wi-Fi analyzer
Services	NTP server config Syslog servers SNMP traps support DNS proxy cnPilot's critical resource service awareness feature reacts to the health of an external Gateway or AAA and turns SSID ON/OFF
APIs	Presence Locationing API
Certifications	FCC, ETSI, CE EN 60601-1-2 (Medical EMC) UL2043 Plenum rated

cnMAESTRO WI-FI CONTROLLER

Cloud & On-Premises	Available in the Cloud or as a downloadable VMware® image (On-premises)
Common Manager	Manage both cnPilot and Cambium's ePMP and PMP 450 radios
Troubleshooting	Single screen wireless view, showing Wireless backhaul, Access point & clients
Frictionless On-Boarding	Secure large scale bulk onboarding Zero touch bulk configuration and provisioning
Device Inventory	Inventory tracking and reporting
Monitoring	Insightful status monitoring; rich visibility to device lifecycle Alarms and events management – Critical/Major/Minor Statistics graphs and table display Alarm traffic light display

Key Stats Monitoring	7 day historic stats
Portal Hosting	Setup Hotspot portals segmented by SSIDs
Voucher	Time and Rate limited Guest access portals with Vouchers for 1,000 client devices
Social Login	Facebook, Google
Site Grouping	Group sets access points for convenient management
Client Insight	Shows client history with aggregate client manufacturer views
Multiple Admins	Multiple admin provisioning per account
Software Upgrade	Ability to upgrade multiple Wi-Fi devices at a time

THE ADAPTIVE CNPILOT NETWORK



Ordering Information: The cnPilot E410 Indoor 802.11ac WAVE 2 Access point. Available in models with and without PoE Injectors

Regulatory Model Number (common to all SKUs): cnPilot™ E410 Indoor

Sales part #s (examples)	Description
PL-E410USA-US	E410 with PoE injector for USA. Similarly PL-E410PEU-EU: ETSI (EU) for EU & PL-E410PXXA-RW: Rest of the world (ROW) certified versions
PL-E410X00A-ROW	E410 No PoE injector for EU

Other country specific SKUs are also available Please contact an authorized Cambium cnPilot distributor for more details or see Cambium Partner portal for list of SKUs

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

cnPilot™ Outdoor E500

802.11ac Gigabit outdoor Access Point

for Enterprise campuses, Public WiFi, 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, up to 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 demanding high density outdoor WiFi networks

High performance Wi-Fi network - All cnPilot's Enterprise Access Points (APs), including the E500 series support features like controller-less roaming, automatic channel scanning (ACS), band steering, pre-set scheduling of SSIDs RADIUS based dynamic rate limiting per SSID and more – all needed essential features for real world WiFi deployment

Mesh Rapidly setup multiple E500 APs via a mesh network with ability to dedicate one radio (for example 5 GHz) for mesh backhaul and use the other radio (2.4 GHz) for client access

Flexible Backhaul - All E500 APs come with two Gigabit Ethernet ports and the ability to configure one of the ports as *PoE out* – perfect for powering on any standard 802.3af equipment. When paired with Cambium's PMP450 or ePMP backhaul subscriber modules (SMs) for wireless backhaul, the E500 can also drive power to the backhaul module eliminating the need for a second power line

Resilience - Dual on-board Active/Standby memory banks ensure 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.

Designed for the outdoors

- 802.11ac with dual Gigabit ports
- UV rated IP-67 enclosure
- Operating Temp: -30°C ~ +60°C
- Electrical heater for cold start
- Rugged electrical surge & ESD protection Circuitry
- Flexible Wall mount or Pole mount bracket design
- Special LTE coexistence filter for enhanced interference rejection
- Light weight - 881g

cnMaestro - WiFi Controller

- Secure end to end management
- Zero-touch Provisioning
- Inventory tracking
- Map location
- Monitoring: key Stats, Alarms
- Mass (bulk) upgrade
- End-to-end Wireless troubleshooting
- Single-pane dashboard view - WiFi APs & Cambium SMs
- Available in Cloud or as On-premises (NOC) Virtual controller

A cnPilot E500 Wi-Fi Network



- Configure, Monitor & Manage
- 802.11ac long range Mesh APs
- High client capacity

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 SSIDS	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 Omni (360°) antenna
ANTENNA GAIN	5 dBi
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	-30°C ~ +60°C
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
VISUAL STATUS	Two (2) multi-color LEDs indicating Access Point & cnMaestro connectivity status

WiFi Features

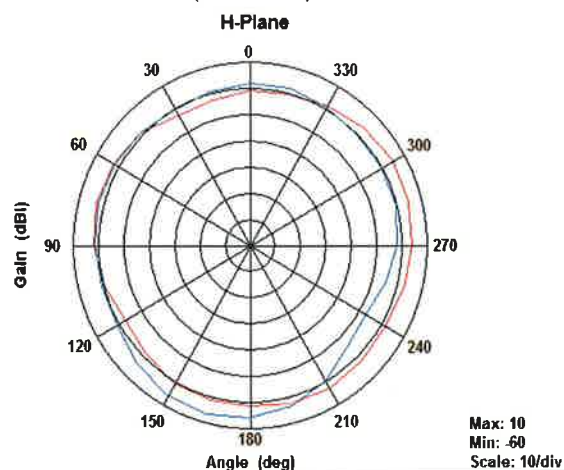
WiFi DEPLOYMENT OPTIONS	Autonomous Stand-alone operation Cloud Managed On-premise controller
MESH	Standard 802.11 Meshing (Mesh) between cnPilot APs
HOTSPOT CAPTIVE PORTAL	Controller based Hotspot (on cnMaestro) Stand-alone mode AP based hotspot server. Also supports hotspot redirection to a 3rd party hotspot server
AUTHENTICATION	RADIUS based 802.1x including EAP-SIM/AKA, EAP-PEAP, EAP-TTLS, EAP-TLS or Secure Web page portal based authentication
SCHEDULED SSID	Turn SSID ON/OFF on a daily/weekly/time of day basis
AAA	Authentication to RADIUS AAA per SSID (Active/Standby)
GUEST ACCESS	Yes
CLIENT DATA LIMITING	Uplink & Downlink rate limiting per SSID
ACCOUNTING	Yes. Supports RADIUS based accounting to multiple AAAs
SUBSCRIBER QoS	WMM
SUBSCRIBER HANDLING	Dynamic VLAN assignment from RADIUS server
CLIENT ISOLATION	Yes
FAST ROAMING	Controller-less fast roaming supported including 802.11r and Opportunistic Key Caching
AUTOMATIC CHANNEL SELECTION	Yes
NAT	Yes (Network Address Translation)
DHCP SERVER	Yes
FIREWALL	Yes
BAND STEERING & LOAD BALANCING	Yes. Steers 802.11n and 802.11ac clients towards the higher throughput 5 GHz band

cnMaestro WiFi Controller

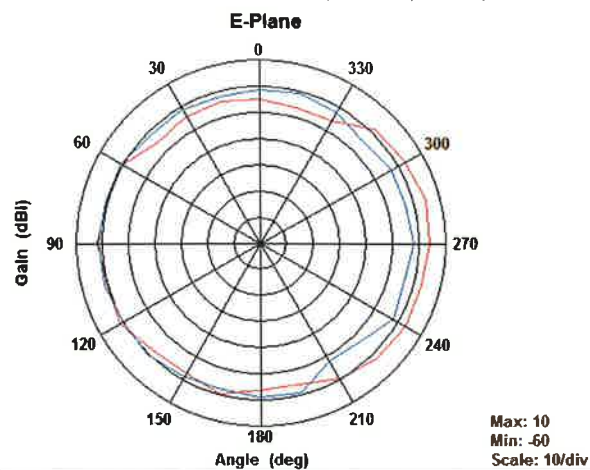
COMMON FRAMEWORK	Single-pane-of-glass common manager for Cambium's from which to manage the WiFi and wireless backhaul products
ON-BOARDING	Secure fast on-boarding
PROVISIONING	Easy zero touch virtual network provisioning Provision before install (pre-provision)
DEVICE INVENTORY	Inventory tracking
TROUBLE SHOOTING	Advanced troubleshooting views covering wireless backhaul (if present) and WiFi APs and Client devices all one single screen
INTUITIVE VIEWS	Map location Hierarchical Dashboard views
CLIENT INSIGHT	Shows client history with aggregate client manufacturer views
MONITORING & ALARMS	Alarms and events management – Critical/Major/Minor Key statistics graphs and <i>sticky</i> 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

2D Gain Patterns

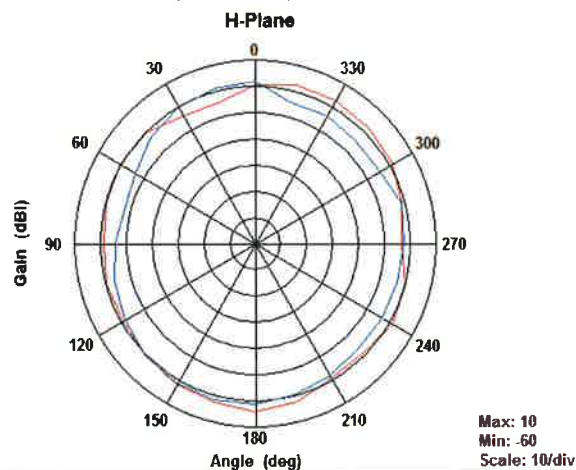
2.4 GHz Azimuth (Horizontal) Gain Pattern



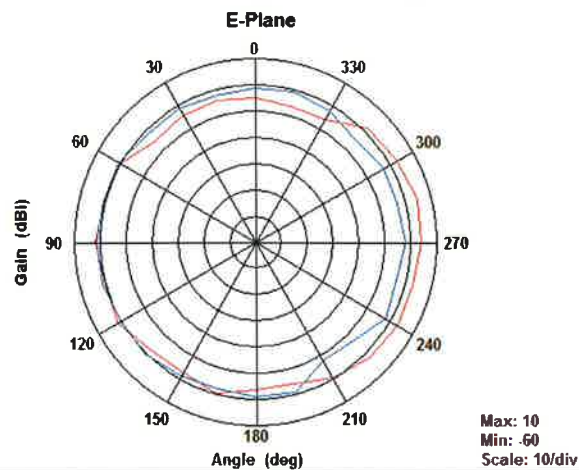
2.4 GHz Elevation (Vertical) Gain pattern


Notation 2.4 GHz: **Red:** Antenna 1 , **Blue** Antenna 2

5 GHz Azimuth (Horizontal) Gain Pattern



5 GHz Elevation (Vertical) Gain pattern


Notation: **Red:** Antenna 3, **Blue** Antenna 4

E500 Ordering Information: cnPilot Outdoor E500

Regulatory Model Number (common to all SKUs): C000100P500A	
Sales part #	Region
PL-E500INTA-US	FCC certified version
PL-E500INTA-EU	ETSI certified version for EU market. Available with UK country cord as well
PL-E500INTA-RW	The Rest-of-the-world version (RW). Includes Power supply; no country cord.
PL-E500INTA-XX	XX: Additional ROW models with power cords for EU, US, India, China, Brazil, Argentina, Australia, and New Zealand are available

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