

Príloha č. 1: Opis predmetu zákazky

Predmetom zákazky je vybudovanie bezplatného WiFi pripojenia pre občanov aj návštevníkov obce prostredníctvom bezdrôtových prístupových bodov na verejných priestranstvách.

V čase vyhlásenia výzvy na predkladanie ponúk sa na verejných priestranstvách nenachádza WiFi pripojenie, ktoré by zasahovalo viac ako 30 % do pokrytia vybudovaného bezdrôtového prístupového bodu.

K pokrytiu verejných priestranstiev WiFi pripojením bude dodanie tovarov – **10 externých prístupových bodov** zahrňujúcich potrebné nevyhnutné príslušenstvo s inštaláciou a montážou WiFi siete.

Vybudovaná WiFi sieť bude používať označenie siete (SSID) WiFi pre Teba a poskytovať internetovú konektivitu s minimálnou rýchlosťou sťahovania 30 Mbps pre každý jeden WiFi bod bezplatne všetkým občanom a návštevníkom obce.

Prístupové body budú umiestnené na nižšie uvedených verejných priestranstvách:

Externý prístupový bod č. 1	Stanica (47.9203, 18.63618)
Externý prístupový bod č. 2	Futbalové ihrisko (47.91951, 18.63396)
Externý prístupový bod č. 3	Dom smútku (47.91085, 18.63687)
Externý prístupový bod č. 4	Zastávka (47.91706, 18.64042)
Externý prístupový bod č. 5	Centrum (47.91924, 18.64156)
Externý prístupový bod č. 6	Pri kostole/stĺp (47.92034, 18.64224)
Externý prístupový bod č. 7	Obecný úrad (47.92224, 18.64246)
Externý prístupový bod č. 8	Bytovky (47.9142, 18.63681)
Externý prístupový bod č. 9	Križovatka (47.92467, 18.6408)
Externý prístupový bod č. 10	Dom služieb (47.91509, 18.6402)

Prístupové body, ktoré budú umiestnené na uvedených verejných priestranstvách musia spĺňať minimálne nasledujúce technické parametre:

Kompaktné dvojpásmové WiFi zariadenia (2,4GHz - 5 GHz), ktoré sú certifikované pre európsky trh,
Životný cyklus použitých produktov vyšší ako 5 rokov,
Stredná doba medzi poruchami (MTBF) minimálne 5 rokov,
Možnosť centrálneho 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,

Minimálne 2x2 MIMO (multiple-input-multiple-output),

Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program).

Sumár aktivít a výstupov:

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.

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/8c95d72d-780e-47ce-a1b0-4cbf3334b453?tab=documents> a musia spĺňať požiadavky Robustného, Spoločného 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. Spoločný: 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)	Odpoveď (po kliknutí na bunku vyberte jednu z možností)
1.	Kompaktné dvojpásmové WiFi zariadenia (2,4GHz - 5 GHz), ktoré sú certifikované pre európsky trh?	TL - strana 4 - riadok Frequency Radio TL - strana 4 - riadok CE compliance Regulatory	Áno
2.	Životný cyklus použitých produktov vyšší ako 5 rokov?	TL - strana 1 - V prílohe výpočty pre produkty ENH1350EXT - 258 177 hours	Áno
3.	Stredná doba medzi poruchami (MTBF) minimálne 5 rokov?	TL - strana 1 - V prílohe výpočty pre produkty ENH1350EXT - 258 177 hours Jedná sa o certifikované zariadenie (Wi-Fi Alliance) https://www.wi-fi.org/certification/programs	Áno
4.	Možnosť centrálného manažmentu pre riadenie, monitoring a konfiguráciu siete (single point of management)?	TL - strana 3-5 (Popis v prílohe datasheetu produktu ENH1350EXT a dohľadový systém ezMaster/SkyKey)	Áno
5.	Súlad s „802.11ac Wave 1, Institute of Electrical and Electronics Engineers“ (IEEE) štandardom?	TL - strana 4 - riadok Supported Radio Technology	Áno
6.	Podpora 802.11x IEEE štandardu?	TL - strana 3 - riadok Comprehensive Network Protection	Áno
7.	Podpora 802.11r IEEE štandardu?	TL - strana 5 - riadok Fast Roaming (802.11r)	Áno
8.	Podpora 802.11k IEEE štandardu?	TL - strana 5 - riadok Fast Roaming (802.11k)	Áno
9.	Podpora 802.11v IEEE štandardu?	TL - strana 5 - riadok Fast Roaming (802.11v)	Áno
10.	Schopnosť AP obsluhovať naraz aspoň 50 rôznych užívateľov bez zníženia kvality služby?	TL - strana 5 - riadok Concurrent User a dohľadový systém ezMaster/SkyKey	Áno
11.	Minimálne 2x2 MIMO (multiple-input-multiple-output)?	TL - strana 4 - riadok Access Point Type	Áno
12.	Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program)?	TL - strana 5 - riadok Hotspot 2.0 Jedná sa o certifikované zariadenie (Wi-Fi Alliance) https://www.wi-fi.org/certification/programs	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 opis a vyobrazenie obsahu hotspot portálu s umiestnením loom?	súčasťou opisu predmetu zákazky	Áno

Všetky otázky sú zodpovedané

Minimálne technické podmienky sú zadefinované.

Počet odpovedí "nie"

0

Počet nezodpovedaných otázok

0

OSTV s.r.o.

04, 949 05 Nitra

IČ DPH: SK2121342509

Príloha č. 3 Podrobný popis prístupového bodu (AP) s väzbou na finančné limity

Položka	Merná jednotka	Počet jednotiek	Jednotková cena (v EUR bez DPH)	Vysútažená suma celkom (v EUR s DPH)	Limity podľa Príručky pre oprávnenosť vydavkov PO7 OPIL pre dopytovo orientované projekty „Wifi pre Teba“ (max. suma za 1 AP v EUR s DPH)
Externý prístupový bod (AP) č. 1-10:				15 000,00 €	1 500,00
Externý prístupový bod	ks	10	935,00 €	11 220,00 €	nevyplňa sa!
Inštalácia a konfigurácia AP	ks	10	196,50 €	2 358,00 €	nevyplňa sa!
SW manažment AP	ks	10	118,50 €	1 422,00 €	nevyplňa sa!
Celkom				15 000,00 €	

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Príloha č. 4: Technické listy dodávaných aktívnych prvkov

Dual Band AC1300 Wave2 Outdoor Long Range Wireless Access Point

The edge 802.11ac built-in high performance Access Point with MU-MIMO technology for high-density use on multiple applications.

EnGenius Wireless Long Access Point solution is designed for deploying on the versatile indoor and outdoor application. To meet today's requirement on varied net-working environment, EnGenius would like to provide the solution as flexible, robust and effective as the organization they desire.

The state-of-the-art 802.11ac and MU-MIMO technology brings revolutionary connecting speed and bandwidth for diversity of multimedia applications. ENH1350EXT equips with two powerful RF interfaces that support up to 867 Mbps in 5GHz frequency band and 400 Mbps in 2.4GHz frequency band (with 2ss/VHT40 clients). With robust IP67 certified casing, these access points is designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity.



Features

- > Dual radio 2x2 802.11 ac/a/b/g/n Access Point with multi-user MIMO (MU-MIMO)
- > Support up to 867 Mbps in 5GHz frequency band and 400 Mbps in 2.4GHz frequency band (with 2ss/VHT40 clients).
- > Support 802.11ac Wave 2.0 technology to enhance overall bandwidth and speed to wireless client devices.
- > 360° omni-directional antennas to achieve comprehensive coverage for networking client devices under a pervasive environment.
- > External antennas interface for connecting with high directional antennas to deliver signal to long-range distance.
- > Compliance with Proprietary 48V PoE Input for flexible installation over 100 meters (328 feet).
- > Robust housing with IP67 enclosure rated to deploy at extremely weather .
- > Deliver High resolution content or multiple IP surveillance over wireless transmission
- > Choose an operating mode to meet your management and deployment requirement. (AP mode/CB mode/WDS modes/Mesh mode will develop in phase 2, Nov. 2018)

Wireless Management solution is ideal for deployment in these venues:

- | | | |
|------------------------|--------------------|-----------------------|
| > Airport Terminals | > Rail Stations | > Resort Properties |
| > Warehouse Operations | > Petroleum fields | > Parks & Campgrounds |
| > College Campuses | > Seaport | > Stadiums & Arena |
| > Corporate Campuses | > Shopping Malls | > Public Lightings |

Enterprise Robust Solution

ENH1350EXT is easily to install anywhere and its internal electronics have been mounted in an **IP67-rated** enclosure, one of the better waterproof and dustproof rating available, designed to withstand harsh environment conditions including serve and prolonged exposure to sunlight, extreme cold, frost, snow, rainfall, hail and humidity .

Scalable and Flexible deployment for Outdoor Installation

With included mounting accessories, ENH1350EXT provides reliable kits to fix this device on anywhere for delivering wireless signal under outdoor environment. To save the maintenance cost and labors fee on deploying Access Points, ENH1350EXT built with power over Ethernet (PoE) functions for receiving power source from the included PoE adapter. With scalable extension over PoE mechanism, Access Points can receive power and signal source easily from **100 meters or 328 feet distance**.

Meanwhile, EnGenius ENH1350EXT also built in external SMA interfaces for users to connect with other high-gain directional antennas for delivering the wireless signal to long-range distance.

Provide Consistent Performance

Designed by EnGenius could provide the powerful RF interface to assure the reliability of signal strength and sensitivity in a pervasive environment. These optimist interfaces will provide the evenly coverage to assist users to reduce dead spots in their WLAN and boost received signal quality to deliver the best **1.2Gbps** air performance to wireless client devices.

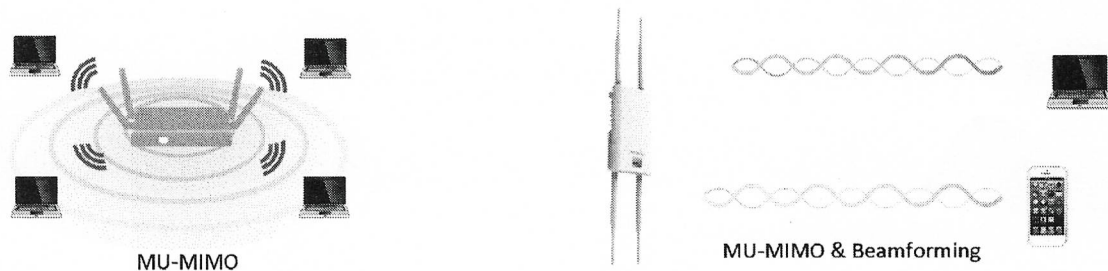
Carry multimedia content over MU-MIMO Transmit Beam-forming technology.

Be a prior AC1300 solution, ENH1350EXT are not only built in powerful RF interfaces, but it also features advanced **Multi-Users Multiple input Multiple output (MU-MIMO)** and **Transmit beamforming (TxBF)** technologies.

The significant improvement on 802.11ac wave 2.0 is MU-MIMO technology, which enhances a dramatic break-through in the performance and flexible transmission to wireless client devices. MU-MIMO allows multiple spatial streams to be allocated to different clients simultaneously, increasing totally throughput, reduce latency, capacity of the WLAN system and increase spectral efficiency.

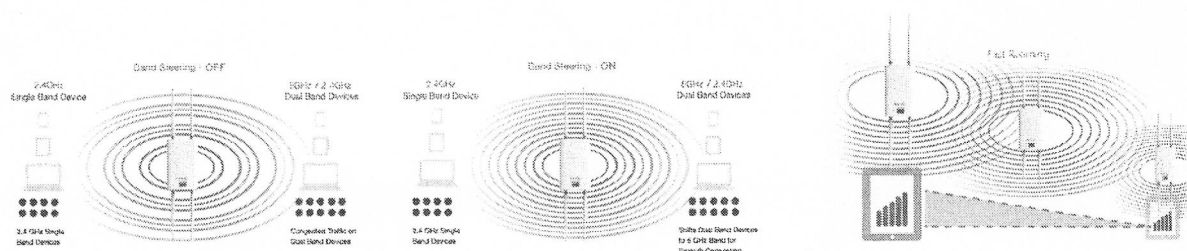
Beamforming is a standard in 802.11ac wave 2.0 which allows Access Points to focus energy of multiple antennas to transmit to a particular client device in that direction of that client. The innovative technology significantly enhances the higher signal-to-noise ratio and greater throughput of that client .

With MU-MIMO and Beamforming technology, ENH1350EXT outdoor long-range Access Point could bring more traffic to wireless client devices simultaneous over the longer distance and save time for serving other wireless client devices.



Exquisite RF Management to Achieve Optimal Wireless Performance

To assist client devices to get the optimal performance under a pervasive environment, **Band Steering** automatically steers dual-band capable client devices to the appropriate channel, while prefer 5GHz or band balancing works to maintain a balanced number of clients per Access Point. Configuring multiple Access Points to serve your own devices (BYOD) in enterprise class wireless LAN environment can enable **Fast Roaming** to reduce roaming delay time and to secure seamless connection on VOIP service when mobile devices move between Access Points.



Securable Portals for different purpose

Administrators can also use **Virtual LAN (VLAN)** with **Guest Network** to isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability for internal network.

With **VLAN per SSID**, the Integrate VLAN ID with a WLAN service set identifier (SSID) interface will deliver packets to the defined path. The built-in QoS mechanism could allow the specific VLAN SSID to get more bandwidth and deliver video streaming content to the destination first.

EnGenius advanced **Cross-band VLAN pass-through** provides a powerful interface to deliver VLAN-tag packets between 2.4GHz frequency band and 5GHz frequency band without removing VLAN-tag. The integrated **Management VLAN and Cross-band VLAN pass-through** function on dual-band Access Points forces a command from a 2.4GHz capable client device and then deliver this command via 5GHz frequency to the other 5GHz capable Access Point throughout WDS BR mode. The ideal combination dramatically enhances the security on operating devices from remotely-side, reduces the maintenance cost, and labor fee significantly.

Restrain Wireless Traffic under a Pervasive Environment

To effectively manage the usage of each client devices at a LAN topology, **Traffic Shaping** controls the bottle of bandwidth to offer the limited bandwidth for an individual **SSID** or **each client** per Access Point. This constraint offers the constant bandwidth to perform specific applications like VOIP and video streaming fluently and smoothly without air congestion on each client devices.

Comprehensive Network Protection

With ENH Access Points, your network is protected from attacks at multiple level through advanced wireless encryption standards such as Wi-Fi Protected Access (WPA2) which uses authentication database and IEEE 802.1X with Radius server. EnGenius also offers the advanced encryption standard to encrypt traffic between Access Points and client devices. To isolate the internal client devices and guest devices, client isolation can avoid each client device to see each other under the same WLAN. Once threats or events are detected, built-in **E-mail Alerts** systems will automatically deliver an e-mail notification for administrators to trigger immediate actions on these networks threats.

Technical Specifications Wireless outdoor long-range Access Point

Wireless Radio Specification

Access Point Type:
Outdoor, IP67, dual radios concurrent, 5GHz 802.11 ac 2x2 MIMO is backwards compatible with 802.11 a/n mode, 2.4GHz 802.11 n 2x2 MIMO is backwards compatible with 802.11 b/g.

SU-MIMO:
Two(2) spatial stream Single User (SU) MIMO for up to 400 Mbps wireless data rate with VHT40 bandwidth to a 2x2 wireless device under the 2.4GHz radio. Two(2) spatial stream Single User (SU) MIMO for up to 867 Mbps wireless data rate with VHT80 to a 2x2 wireless device under the 5GHz radio.

MU-MIMO
Two(2) spatial stream Multi User (MU) MIMO for up to 867 Mbps wireless data rate with VHT80 bandwidth to two(2) MU-MIMO capable client devices simultaneously under the 5GHz radio.

Frequency Radio
2.4GHz: 2400MHz ~ 2835MHz
5GHz: 5150MHz~5250MHz, 5250MHz~5350MHz, 5470~5725MHz, 5725MHz~5850MHz
Support radios and channels will be varied on the configured regulatory domain.

Supported Radio Technology
802.11b: Direct-sequence spread-spectrum (DSSS)
802.11ac/a/g/n: Orthogonal frequency-division multiplexing (OFDM)
802.11n/ac: 2x2 MIMO with 2 streams
802.11ac supports very high throughput (VHT) — VHT 20/40/80 MHz
802.11n supports high throughput (HT) — HT 20/40 MHz
802.11n supports very high throughput under the 2.4GHz radio — VHT40 MHz (256-QAM)
802.11n/ac packet aggregation: AMPDU, ASPDU

Supported Modulation Type
802.11b: BPSK, QPSK, CCK
802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

Transmit Power (Maximum Value)
2.4GHz: 23dBm
5GHz: 23dBm
Maximum power is limited by regulatory domain

Tx Beamforming (TxBF)
Increasing signal reliability and transmitting distance.

Supported data rates (Mbps)
802.11b: 1, 2, 5.5, 11
802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
802.11n: 6.5 to 300 (MCS0 to MCS15)
802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS=1 to 2)

Power

Maximum Power Consumption
Maximum 12.6W

Power Source
802.3af/at Compliance Source
Proprietary 48V-54V
Active Ethernet (Power Over Ethernet, PoE)

Antenna

SMA Type interfaces
2.4GHz: Two(2) detachable 5.0dBi SMA antennas
5GHz: Two(2) detachable 5.0dBi SMA antennas
Optional Solutions
Alternative solution to compatible with SA2216 and SA5219 sector Antennas.

Interfaces

Networking Interface
One (1) 10/100/1000 BASE-T RJ-45 Ethernet Ports
Link Aggregation achieves 2Gbps Throughput

LED Indicators
Display system and wireless transmission status

Reset Button on PoE Adapter
Convert Access Point to the Factory default or the Users Default through the reset button of the accompanied EPA5006GR

Mounting

Pole Mounting
Assemble a mounting bracket to fix this Access Point on a pole.

Wall Mounting
Mount this Access Point on a flat wall

Mechanical & Environment

Dimensions (Device only)
173.60 x 111.20 x 30.29 mm (6.83" x 4.38" x 1.19")

Weight
829.5 g

Operating
Temperature: -20°C ~ 60°C (-4°F ~ 140°F)
Humidity: 0% ~ 90% typical

Storage
Temperature: -40°C ~ 80°C (-40°F ~ 176°F)
Humidity: 0% ~ 90% typical

Environment Protection Level
IP67

Surge Protection
1kV

ESD Protection
Contact: 4kV
Air: 8kV

Compliance Regulatory

FCC
Subpart 15 B
Subpart C 15.247
Subpart E 15.407

CE
EN 300 328
EN 301 893
EN 301 489
EN 50385
EN 55032
EN 55024
EN 61000

CB
IEC 60950-1
IEC 60950-22

Technical Specifications Wireless outdoor long-range Access Point

Operating Mode

Access Point Mode (AP Mode)

Be an Access Point behaves like a central connection for station or clients that support IEEE 802.11 ac/a/b/g/n network.

Client Bridge Mode (CB Mode)

The Access Point essentially acts as a wireless adapter that connects to an access point to allow a system of wireless access to the network in the client bridge mode.

Mesh Modes

Mesh modes establish wireless connection to avoid interconnection on air. The architecture will be flexible for users to keep connection to Gateway side always.

WDS Modes (WDS AP, WDS BR, WDS Station)

WDS modes uses WDS technology to establish the wireless connection via filling MAC address in both Access Points to enlarge the wireless area.

Exquisite RF Management

ACK timeout (Distance Control)

Set the ACK timeout to assure the proper distance to deliver wireless signal properly

Site Survey

Scan signal level of an environment to provide parameters for performing Auto Transmit power and auto channel.

Auto Transmit Power

Automatically adjust power level

Auto Channel

Automatically assign a clearly channel to perform RF transmission under a pervasive environment.

Fast Roaming (802.11k)

Collect the parameters of neighborhood Access Points to find the optimal AP.

Fast Roaming (802.11v)

Cognize the signal strength of client devices under each to steer these client devices to one of Access Points if signal level is less than the default value of AP systems.

* This function will be available in September 2019.

Band Steering

Steer client devices to a proper frequency band for getting more bandwidth and speed under an Access Point.

RSSI Threshold

Kick client devices that the signal (RSSI) is above the set value from the AP for reducing the interference and optimize the connecting quality.

Optimize Performance

Quality of Service

Compliance with IEEE 802.11e standard
Prioritizes voice over data for both tagged and untagged traffic
Transmit video, voice and data at the same SSID

Power Save Mode

Support U-APSD

Pre-Authentication

Compliance with 802.11i & 11x

PMK Caching

Compliance with 802.11i
If wireless client devices has authenticated to an access point, it does not perform a full authentication exchange when client devices roaming between access points.

Fast Roaming (802.11r)

Use a Fast Transition key to handover between Access Points

Multicast to Unicast Conversion

Using the IGMP protocol, an access Point delivers high definition content to a large number of clients simultaneously.

Concurrent Users

100 client devices to connect to the Access Point simultaneously.

Easy to Management

Multiple SSIDs

BSSID support
Support 8 SSIDs on both 2.4GHz and 5GHz bands.

Guest Network

Isolate each client for avoiding an unnecessary touch, leaking sensitive data, and enhancing Internet security and reliability.

VLAN Tag

Independent VLAN setting can be enable or disable. Any packet that enters the Device without a VLAN tag will have a VLAN tag inserted with a PVID (Ethernet Port VID).

VLAN Pass-through

Broadcast VLAN-tag packets to find the destination and deliver packets over the defined path. The functions allows network topology scalable and flexible.

VLAN Per SSID

Integrate VLAN ID with a SSID interface to forward packets over the defined path. The functions isolate client devices to get more security.

Management VLAN

Feature is enabled with specified VLAN ID, the device will only allow management access with the same specified VLAN ID from remotely location by using protocols such as telnet, SSH, snmp, syslog etc.

Traffic Shaping

Controls the bottle of bandwidth to offer the limited bandwidth for an individual SSID or each client per Access Point.

MAC Address Filtering

Filter up to 32 sets MAC addresses per SSID

E-Mail Alert

Provides a network monitoring tool for administrators to stay informed the configuration change.

Save Configuration as Users Default

Save the customized configuration as default value for different customer demands.

Wi-Fi Scheduler

Perform a regular reboot on access point at assigned schedule
Perform it to enable or disable 2.4GHz or 5GHz interface from a period time.

SNMP & MIB & CLI

v1/v2c/v3 support
MIB I/II, Private MIB
CLI Supported

RADIUS Accounting

Help operators to offload 3G to Wi-Fi seamlessly

Wireless Clients list

Provide the list to display real status of wireless client devices on this Access Point.

Hotspot 2.0

This function will allow client devices to discover wireless Access Point under an environment and to automatically exchange data for getting authorization on accessing Internet when roaming between Access Points.

* This function will be available in July, 2019.

Comprehensive Protection

Wireless Encryption Standard

WPA2-PSK(Personal), WPA2-EAP(Enterprise)

Hide SSID in beacons

Client Isolation

Block/Isolate the communication between the associated clients under the same WLAN.

HTTPS

A secure communication protocol can be enabled to allow secure management web access over a computer network.

SSH Tunnel

A secure communication protocol can be enabled to allow secure remote shell access or command execution.

RF Performance Specification Wireless outdoor long-range Access Point

Channel	Data Rate	Transmit Power (Aggregated, dBm)	Receive Sensitivity (Aggregated, dBm)
802.11b 2.4 GHz	1 Mbps	23.0	-92.0
	2 Mbps	23.0	-88.0
	5.5 Mbps	23.0	-87.0
	11 Mbps	23.0	-84.0
802.11g 2.4 GHz	6 Mbps	23.0	-89.0
	54 Mbps	21.0	-72.0
802.11a 5 GHz	6 Mbps	23.0	-89.0
	54 Mbps	21.0	-71.0
802.11n HT20 2.4 GHz	MCS 0 / 8	23.0	-87.0
	MCS 7 / 15	20.0	-67.0
802.11n HT40 2.4 GHz	MCS 0 / 8	23.0	-84.0
	MCS 7 / 15	20.0	-66.0
802.11n HT20 5GHz	MCS 0 / 8	23.0	-89.0
	MCS 7 / 15	20.0	-68.0
802.11n HT40 5GHz	MCS 0 / 8	23.0	-86.0
	MCS 7 / 15	20.0	-66.0
802.11ac VHT20 5GHz	MCS0	23.0	-89.0
	MCS8	19.0	-63.0
802.11ac VHT40 5GHz	MCS0	23.0	-85.0
	MCS9	18.0	-60.0
802.11ac VHT80 5GHz	MCS0	23.0	-83.0
	MCS9	18.0	-56.0

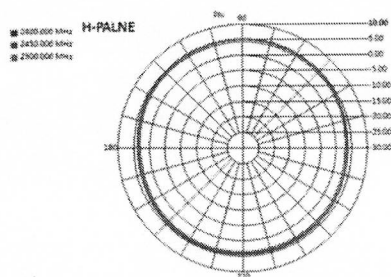
*Maximum RF performance of the hardware provided. Maximum transmit power is limited by local regulatory.

*The supported frequency bands are restricted by local regulatory requirements.

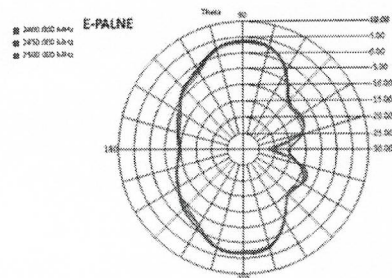
*Transmit power is configured in 1.0dBm increments.

Antennas Patterns Wireless outdoor long-range Access Point

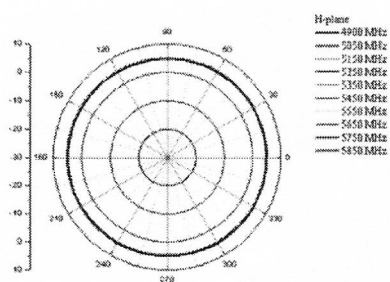
2.4GHz H-Plane



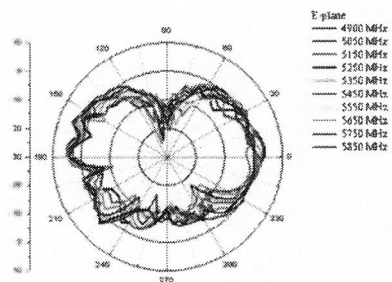
2.4GHz E-Plane



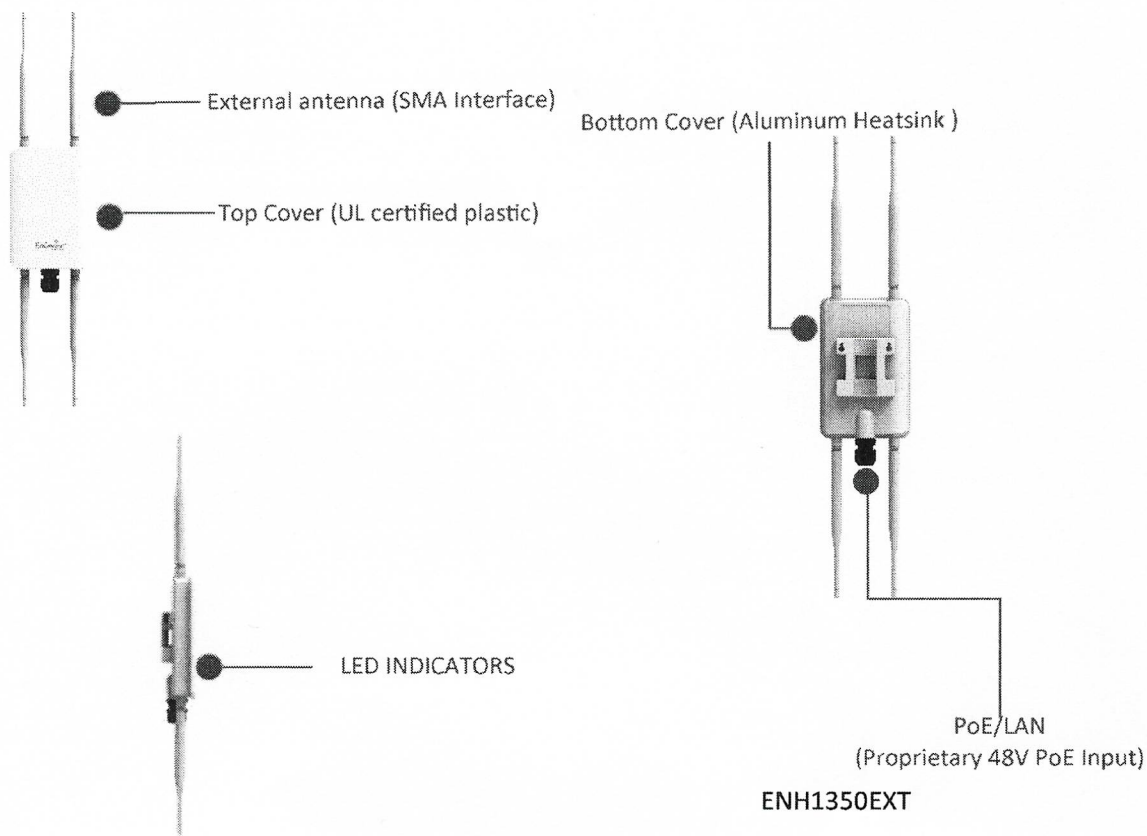
5GHz H-Plane



5GHz E-Plane



Physical Interfaces



Standards	802.11 ac/a/b/g/n
Frequency	2.4GHz+5GHz
Data Rates	400Mbps + 867Mbps
Antennas	2.4GHz: 5.0dBi; 5GHz: 5.0dBi
Physical Interface	1 x Gigabit LAN 4 x SMA Connector Interfaces
Radio Chains/Streams	2x2: 2

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Features and specifications subject to change without notice. Trademarks and registered trademarks are the property of their respective owners. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. Prior to installing any surveillance equipment, it is your responsibility to ensure the installation is in compliance with local, state and federal video and audio surveillance and privacy laws.

Version 1.0— 04/13/16

Príloha č. 5: Zoznam subdodávateľov

P. č.	Obchodné meno a sídlo subdodávateľa	IČO	Údaje o osobe oprávnenej konať za subdodávateľa (v rozsahu: meno a priezvisko, adresa pobytu, dátum narodenia)	% podiel na zákazke	Predmet subdodávok
1	Bez subdodávateľov				

