CALL FOR TENDERS

FOR THE AWARD OF PROCUREMENT OF WIRELESS NETWORK SOLUTION FOR PPA SA NEEDS

Piraeus, Greece

July 2020

1. INTRODUCTION

1.1 Preamble

The Port of Piraeus (Port of Piraeus) is the largest port in Greece, spanning a coastline length of more than twenty-four kilometres and expanding over an aggregate area exceeding five million square meters. The geographic location of the Port of Piraeus makes it a vital transportation, trade and supply, tourism and communications hub connecting the Greek islands with the mainland, as well as being an international centre of marine tourism and commercial carriage of goods. The position of the Port of Piraeus is conducive to its operation both as a port for the wider area of Greece and for the Balkans and Black Sea countries.

The Port of Piraeus is situated at the intersection of sea routes linking the Mediterranean with Northern Europe and its geographic position (south of the 38th parallel) enables major line ships to access it without significant deviation from the Far East trade routes. The Port of Piraeus hosts a complex and unique variety of activities, including: ferry/passenger shipping (it is the largest passenger port in Europe), servicing of all types of cargo, cruise, vessel repair activities, as well as the Port of Piraeus free zone (a control type I customs free zone) operating under applicable tax and customs legislation in the area (Piraeus Free Zone).

2.1 The Piraeus Port Authority S.A. (PPA)

PPA is the legal entity entrusted with the administration and operation of the Port of Piraeus. It was established as a legal entity of public law by virtue of Law 4748/1930, which was restated by Compulsory Law 1559/1950 and ratified by Law 1630/1951, each as subsequently amended and supplemented. In 1999 PPA was transformed into a stock corporation (société anonyme).

In April 2016, following an open public tender process, the Hellenic Republic Asset Development Fund (HRADF), under its capacity as the major shareholder of PPA, and COSCO HK Ltd entered into a Shares Purchase Agreement for the acquisition of the majority participation in the share capital of PPA. In August 2016, PPA ceased to be a state-owned company and since that day it is a private-owned company, whose object is to perform its obligations, conduct its activities and exercise its faculties under or in respect of the concession agreement between Greek State and PPA, as ratified by Law 4404/2016.

2. CONTRACTING AUTHORITY – SCOPE OF Tender

The Contracting Authority

The Contracting Authority is PPA.

The address/e-mail to which the Offers are submitted is:

Piraeus Port Authority S.A.
Procurement Department Secretariat (2nd Floor, office No 212)
10, Akti Miaouli, 18538, Piraeus, Greece.
Email: procurement@olp.gr

Scope of Tender

Piraeus Port Authority (hereafter named "Contracting Authority" or "PPA" or client) is seeking proposals from qualified Candidates, or legal entities, experienced in providing and implementing campus wireless networks, in order to provide a secured, highly available, turnkey solution, including the following: replacement of existing wireless network equipment with new wireless network equipment and provision of wireless network that meets or exceeds the technical specifications listed in Chapter C of this document. The aim is to provide corporate WiFi services for PPA users and WiFi services to Customers and Passengers for both free and chargable way.

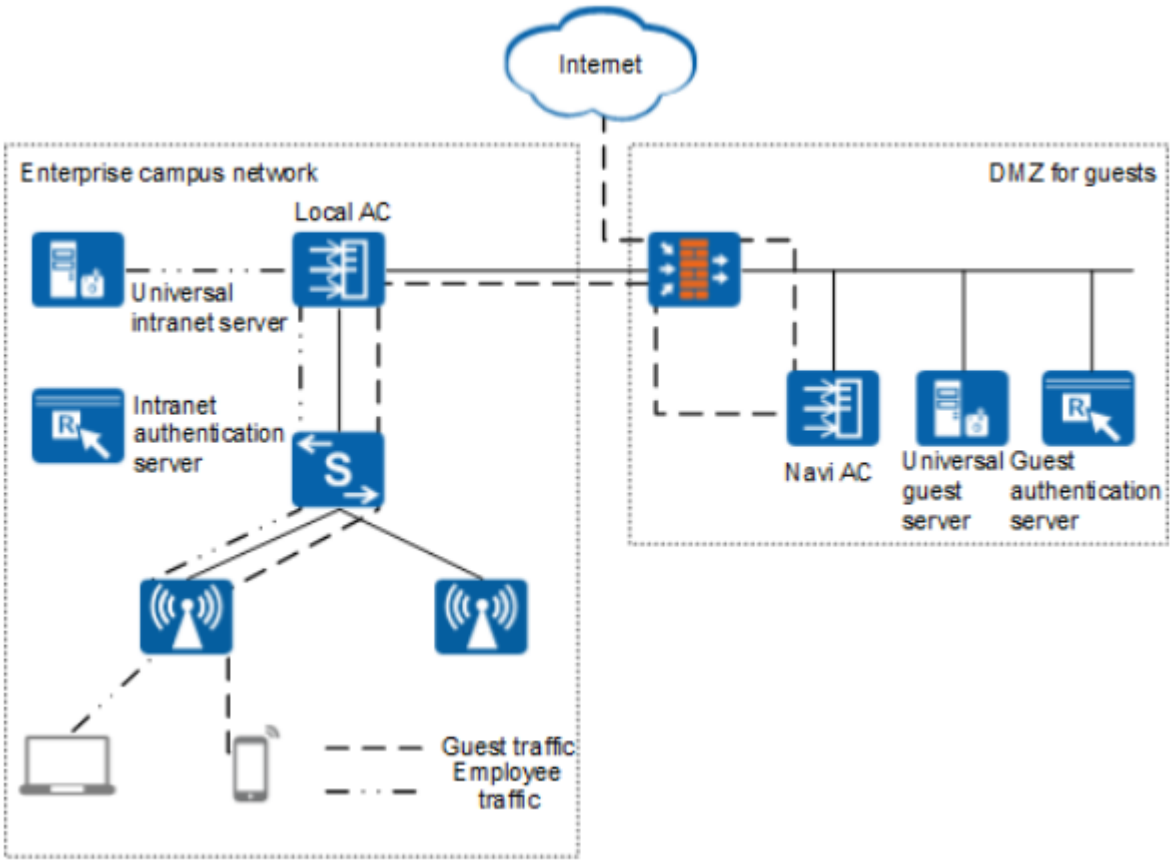
The candidates are requested to do a detailed site survey before submitting their offers, in order to understand the exact requirements.

The areas that should be covered, are listed in the coverage area table in Appendix B.
Detailed drawings of PPA S.A. facilities can be also found as an attachment in Appendix B.

The current PPA wireless network is based on Cisco Access Points 1242, AIR-LAP1041N, AIR-CAP1602I, AIR-AP1815I, AIR-BR1310G-E-K9-R series operating at 5GHz and 2,4GHz for the client part. The wireless clients are a collection of "Terminal Equipment" devices (i.e. Handheld devices, Tablets, Vehicle Mounted Terminals, PCs, Laptops, etc.) based on different versions of Operating Systems detailed in Appendix A.

The current LAN infrastructure includes single or multi mode fiber optic panels with LC and SC connectors that can be utilized for the purposes of this project. Additionally, the active access equipment currenly in use, is capable of 1GB links and up to PoE+ (IEEE 802.3at). If additional network infrastructrure is needed (civil works, racks, pols, pillars with the appropriate elecromechanical equipment and sensors, patch panels, cabling, fiber optics and ethernet terminations, switches, sfp modules, etc), those will be provided by the contractor.

Proposed WIFI solution's backend systems (Wireless LAN controllers) must have two separate sets of clusters; one serving corporate users and another cluster serving the external users / passengers. Please refer to the illustration below for further details:



The firewall cluster serving the external / passenger user traffic are also part of this tender. For specific requirements, please refer to the corresponding technical requirements tables.

Any solution proposed must include all additional costs that shall be incurred in order to create a functional, secure and managed enterprise environment. These additional considerations must include planning, equipment acquisition, licensing, staging, implementation of a management platform, configuration, patch cords, possible cabling and appropriate devices for connecting the "Terminal Equipment" to the wireless network and network switch, installation, deployment and training services, vouchers, reporting, documentation updates, communication and coordination

with other parties involved in the overall project. Any associated costs such as wireless client upgrades/replacements, device installation costs, lifting equipment etc., must be clearly specified and explained in detail in the Candidate's Financial proposal.

PPA will evaluate only the proposals that will provide to PPA the latest available wireless technology (hardware, software, services) such as WIFI-6 hereafter named "Wireless Solutions".

The selected Contractor must be willing to work in a cooperative manner with PPA staff and other parties working on behalf of PPA.

Following are the:

Chapter A: Definitions
Chapter B: Prequalification criteria/ Prequalification Documents
Chapter C: General Solution Requirements
Chapter D: Solution Component Requirements
Chapter E: Financial Specifications
Chapter F: Terms and Conditions
Appendix A – Wireless Clients List
Appendix B – Initial design
Appendix C - GDPR Statement
Appendix D - Participation Bond
Appendix E - Performance Bond
Appendix F - Good Operation Gurantee letter
Appendix G – Project Deliverables

Appendix H: Quality Acceptance Tests

Chapter A : Definitions

1.1 **Contractor** means an enterprise or joint venture or group of enterprises selected by PPA to carry out the Project, which enters into a contract on the matter with PPA.

1.2 **"Acceptable Institutions"** , means a credit or financial institution or insurance company within meaning of Article 14(1)(b) or (c) of Law 4364/2016 operating lawfully in an EU, EEA or OECD or Financial Action Task Force (FATF) country, which in accordance with the applicable provisions have such a right, or in a country with a credit rating for long-term investments of at least A- (or equivalent) or higher from at least any two of the rating's agencies Moody's, Standard & Poor's or Fitch.

1.3 **"Tender Invitation - or Call",** means the present document.

1.4 **"Tender procedure"** means the present tender procedure.

1.5 **"Decision-maker" means** the competent Body of PPA SA.

1.6 **"Client"** means PPA SA

1.7 **"Participation Bond"** has the meaning attributed to it in Chapter B and Appendix D hereof.

1.8 **"Performance Bond"** has the meaning attributed to it in Chapter B and Appendix E hereof.

1.9 **"Good Operation Gurantee letter"** has the meaning attributed to it in Chapter B and Appendix F hereof.

1.10 **"Interested party"** means the Enterprise or Joint Venture or Group of Enterprises which intends to take part in the tender procedure by submitting an expression of interest.

1.11 **"Tender Management Team",** means the Committee of PPA established by decision No. who indicatively but not limited to organizes, reviews, guides, supervises and provides legal support and reporting during tender procedures.

1.12 **"Tender Evaluation Team" or "Committee"** means the PPA Tender Evaluation Team established by decision

1.13 **"Contractor Management Team"**, means the standing Prospective Contractor Selection Management Committee of PPA established by decision.

1.14 **"Contract"** means the Agreement entered into with the Contractor.

1.15 **"Concession Agreement"** means the 24.6.2016 amendment and codification into a single text of the Concession Agreement of 13.2.2002 between the Hellenic Republic and Piraeus Port Authority S.A., which was ratified by Law 4404/2016.

1.16 **"Candidate" or "Tenderer" or "Participant" or "Contractor"** means the Enterprise, Body, Firm or Joint Venture or Group of Enterprises or Entities which submit a binding expression of interest in the tender procedure.

1.17 **"Proof of Concept"** has the meaning of a scaled down version of the offered "Wireless Solution" which represents an approximation of the characteristics of the final product, prior to the selection of the Contractor and the implementation of the Project.

Chapter B. Prequalification criteria and Prequalification Documents

B.1 Prequalification criteria

Each Candidate which participates in the tender procedure on its own or as a member of a Joint Venture is obliged, upon penalty of disqualification for that tender procedure, to fulfill the following prequalification criteria.

B.1.1 Professional prequalification criteria (ON/OFF criteria)

Each Contracting Enterprise which participates in the tender procedure on its own or as a member of a Joint Venture is obliged, upon penalty of disqualification for that tender procedure, to have the following professional qualifications (The criteria of this paragraph should be also applicable for the subcontractors).

1. It must not be in a state of bankruptcy, liquidation or compulsory receivership and proceedings to have it declared in a state of bankruptcy, liquidation or compulsory receivership must not have been launched.
2. The managing partners in the case of a limited or general partnership or limited liability company, and the Chairman and Managing Director in the case of a Societe Anonyme or the natural persons exercising management functions in all other cases must not have been convicted on the basis of a final judgement for:
    a. Participation in criminal organizations within the meaning of Article 2(1) of Council Joint Action No. 98/773/JHA.
    b. bribery within the meaning of Article 3 of Council Decision of 26 May 1997 and Article 3(1) of Council Joint Action No. 98/742/CFSP
    c. Fraud within the meaning of Article 1 of the Convention to protect the financial interests of the European Communities.
    d. Money laundering within the meaning of Article 1 of Council Directive 91/308/EEC on prevention of use of the financial system for the purpose of money laundering.
    e. embezzlement (Article 375 of the Hellenic Penal Code)
    f. fraud (Articles 386-388 of the Hellenic Civil Code)
    g. Extortion (Article 385 of the Hellenic Penal Code).
    h. Forgery (Articles 216-218 of the Hellenic Penal Code).
    i. Perjury (Article 224 of the Hellenic Penal Code).
    j. Bribery (Articles 235-237 of the Hellenic Penal Code).

k. Fraudulent deliberate bankruptcy (Article 398 of the Hellenic Penal Code).

3. They must have fulfilled obligations relating to the payment of social security contributions in accordance with applicable Greek law (in the case of a Greek or foreigner engaged in activity in Greece) or in accordance with the law of country of establishment.

4. They must have fulfilled obligations relating to the payment of taxes in accordance with applicable Greek law (in the case of a Greek or foreigner engaged in activity in Greece) or in accordance with the law of country of establishment.

B.1.2 Financial and economic standing criteria (ON/OFF)

Upon penalty of disqualification, each candidate must meet the following financial criteria:

1. It must have an average annual turnover over the last 2 years of over € 5.000.000 (per year)

   * In case of Joined ventures, each party of this Joined Venture must fulfill financial and economic standing criteria.

B.1.3 Technical skill criteria (ON/OFF)

Upon penalty of disqualification, each candidate must meet the following technical criteria:

1. At least two (2) (indoor/outdoor) WiFi project's implementation that each project amount is over 300.000 € in last three (3) years.
2. It must have ISO 9001:2015 and ISO 27001:2013
3. The products must be purchased via manufacturer or official Distribution Channels within the country the products will be sold and installed.

B.2 Prequalification Documents

In order to prove the fulfillent of the above mentioned prequalification criteria, the following prequalification documents must be submitted as originals or true copy of the original or simple easy and clear to read copies (a solemn declaration is required for declaring their validity1) which must be valid and in force throughout the whole tender procedure:

i. A participation Bond according to the requirements of the present chapter and Appendix D.
ii. A brief description of the Candidate;
iii. A copy of certificate of incorporation (or equivalent), issued within the last 12 months from the date of the Tender;

[1] A Solemn Declaration of the legal representative of the candidates that any certificate, or any other document included in the file of the prequalification documents, is a true copy of the original (or duly printed by the internet site of the Competent Authority issuing it) as well as that they are obliged to submit the original documents once they are awarded the wireless network solution Project.

iv. A copy of statutes/by laws (or equivalent);

v. Latest audited financial statement if applicable;

vi. Manufacturer's authorization form.

vii. Official proof that the person signing the offer is legally binding the Candidate, in case the Offer is not signed by the person specifically authorised for this reason as per the below par. vii.

viii. The Candidate's competent management body's decision to participate in the Tender, submit the offer and appointing its authorized representative to specifically sign and submit the Offer; the authorized representative must have delegated powers to answer on behalf of the candidate to any questions PPA may have, and to sign the agreement.

ix. A binding declaration of the candidate:

a. stating that is fully aware of the contents of this call and unconditionally and unreservedly accepts its terms;

b. acknowledging that its participation in the process takes place at its sole risk and expense and that the participation as such does not establish any right to compensation from PPA or PPA's personnel;

c. acknowledging that disqualification from the Tender or failure to succeed in the Tender does not confer to the Candidate any right to compensation;

x. Full contact details for the Candidate and the Candidate's authorized representative (including full name, address, phone and fax numbers and email address);

xi. The candidate will submit either a Binding Declaration confirming the following or the below documents, according to applicable law:

(a) Certificate of country of establishment stating that the Candidate is not bankrupt or is the subject of insolvency or winding up proceedings;

(b) Certificate of country of establishment stating that the Candidate is not under mandatory administration;

(c) Certificate of country of establishment stating that the Candidate is not under liquidation or administered by a liquidator;

(d) Certified copies of current tax and social insurance compliance certificate, or equal evidence in accordance with the law of place of the candidate's establishment.

xii. A reference list regarding previous similar wireless network solution projects. This list shall contain among other things a brief description of each reference and information about the similar wireless network solution project. The number of installed access points per project and the projects' contract amounts should be mentioned, within the reference list.

xiii. Related Certification for Authorized Reseller/Authorized Channel Partner of the Manufacturer in Greek region

xiv. A solemn declaration from the contractor, that the products will be purchased via Authorized Distribution Channels within the country the products will be sold and installed.

xv. ISO 9001:2015 proof of certification

xvi. ISO 27001:2013 proof of certification

Bank Guarantees

Candidates must provide the below mentioned letters of guarantee issued by an Eligible Bank:

- Participation Letter of Guarantee (amount of 10.000 euros) according to Appendix D.
- Good performance Letter of Guarantee (10% of the contractual amount) according to Appendix E.
- Good Operation Gurantee letter (5% of the contractual amount) according to Appendix F.

The Guarantee letter shall be addressed to PPA SA, and in the event of a Joint Venture must be common to all members hereof.

Participation Bond

The candidate's participation bond must fully cover the period for which the offer is valid that is four (4) months from offer submission deadline, and consequently will not be accepted if their validity period is less.

The participation bond will be seized by PPA if, while it is in effect, (a) the candidate withdraws its participation documentation or (b) if the interim Contractor does not submit the award documentation in good time or does not come forward in good time to sign the contract or (c) if the above persons provide false evidence or information relating to the grounds of disqualification.

The participation bond will be returned:
(a) to the Contractor when the performance bond is submitted and
(b) to candidates within 10 working days of the tender procedure being completed.

Performance bond

To sign the contract it is necessary to submit an open-ended performance bond amounting to 10% of the contractual value. In addition, candidates should be aware that as a guarantee of

their obligation to ensure proper, flawless and timely implementation of the Project and timely and proper performance of its obligations to PPA.

PPA will hold the guarantees (corresponding to 10% of the contractual price) and return them to the Contractor after the elapse of one (1) month from completion of the wireless network solution project, as guarantees for proper operation of the Project, in accordance with the contract terms and technical specifications agreed.

Good Operation Gurantee letter

Upon its return, the Performance Bond will be replaced by the Good Operation Gurantee letter according to the Appendix F and will cover the three (3) years warranty and technical support of Chapter E article A .

PPA will hold the guarantee (corresponding to 5% of the contractual price) and return them to the Contractor after the elapse of three (3) years from completion of the wireless network solution project, as guarantee for good operation of the Project, in accordance with the contract terms and technical specifications agreed.

General Note for Guarantee Bonds

Alternatively Candidates may provide the necessary documentation that an equal, to the above mentioned guarantee bonds amount has been deposited, transferred and was made available as guarantee in one of the following PPA's bank accounts:

ΕΘΝΙΚΗ ΤΡΑΠΕΖΑ	**GR1501101900000019050500651**
ALPHA BANK	**GR7101401250125002320006462**
Eurobank	**GR4902600250000440201113841**
ΤΡΑΠΕΖΑ ΠΕΙΡΑΙΩΣ	**GR8501721140005114032172486**

Chapter C. General Solution Requirements

#	Requirement	Mandatory	Response	Reference
	General Requirements / Guidelines			
1	Proposed solution must be Enterprise Class helping PPA to enhance the productivity of its employees and improve passenger experience in a secure, efficient and highly available manner	YES		
2	The bidder must have previous knowledge dealing with similar scale projects in terms of WLAN coverage Planning and Implementation. Submission of reference documents from similar scale projects which are duly signed from the end customer is mandatory	YES		
3	Proposed solution must be on premise, having the backend systems of the solution installed at PPA's Data Centers	YES		
4	Proposed solution's access points must offer dual-band connectivity to the endpoints (stations)	YES		
5	Proposed solution's access points must be compliant with the following ETSI Standards: • 2.4 GHz ETSI EN 300 328 V.2.1.1 (2016-11) • 5 GHz ETSI EN 301 893 V2.1.1 (2017-05)	YES		
6	The RF Coverage study must follow the permitted E.I.R.P levels in the EU and Greece both for indoor and outdoor locations designated in <Appendix B>. The positions of the APs in the appendix are indicative	YES		
7	In order to make sure uniform WLAN coverage on the designated areas listed in <Appendix B>, the following tasks fall under bidder's responsibilities: · RF Simulation Study assuming that the dominant frequency range to be used is 5GHz · Site surveys to ensure / validate. PPA will Provide o CAD documents o Mounting Options o Ethernet – Fiber Optics Availability o Powering Options o Wiring Closet Availability o Ethernet port / speed / span power budget availability	YES		
8	Proposed solution must be able to detect WIFI and non WIFI interference. In case of Radar interference, the AP must be able to change its previously selected channel automatically	YES		

9	Proposed solution's access points must support Beamforming. Describe the type of Beamforming capabilities per frequency range (2.4GHz and 5GHz respectively)	YES
10	Proposed solution's access points must have built-in antenna arrays to ensure Beamforming support.	YES
11	The backhaul interface of each and every AP will be a wired Ethernet interface either optical or electrical. The use of Mesh Technology as backhauling must be avoided	YES
	RF Planning & Design	
12	During the RF Simulation Study Assume the following: • The majority of the internal separation walls are made of plaster. The candidate should implement a site survey to determine the walls material. Stairs and Elevators are not included in the RF Planning and Design study	YES
13	In order to ensure stable wireless connection, the signal strength should be higher or equal to -65dBm for indoor and higher or equal to -70dBm in warehouses and outdoor areas	YES
14	Minimum bandwidth user type: • Internal Users ≥ 10MBps • External Users (B2B) ≥ 8MBps • External Users (Passengers) ≥ 6MBps	YES
15	The Contractor must submit the layout installation plan containing all the offered Solution equipment together with the heat coverage map of required PPA areas.	YES
16	Offered solution's back-end systems (WLAN Controllers) must be fully redundant. Describe the High Availability capabilities of the WLAN Controllers	YES
17	A scaled down version of the offered "Wireless Solution" may be required from PPA for a Proof of Concept prior to contract assignment.	Strongly preferred
	Deployment and Configuration	
18	Describe how configuration and deployment to devices is performed. Highlight where processes are automated.	YES
19	Does the system provide automated configuration verification after deployment? Please describe the process	YES
20	Are there configuration changes needed on aggregation or edge switches and routers? Please describe in detail.	YES
21	Do deployed devices automatically configure themselves for optimal channel and transmit power when they become operational? Please describe the	YES

	process	
22	The "Wireless Solution" should support the deployment of wireless services such as video and voice	YES
23	Contractor should implement at least 5 WiFi user profiles according to the Specification that PPA will provide, including all necessary configuration on the new and existing PPA network equipment.	YES
24	Contractor should implement all necessary configuration on the existing PPA network equipment (switch, router, firewall, NAC, etc) in order to deliver a turnkey solution, even if these are not described in the tables above.	YES
	Security	
25	Proposed solution must have a separate cluster of WLAN Controllers dedicated for internal users and radio resource management and a separate cluster of WLAN Controllers dedicated for external users	YES
26	The traffic of the internal users may be forwarded at access switch level	YES
27	The traffic of the external users must only be forwarded through their corresponding WLAN Controller cluster	YES
28.1	Proposed solution must have a separate cluster of Firewalls dedicated to handle the traffic of the external users to the Internet. This cluster will employ NAT function to enable external users accessing the internet.	YES
28.2	Proposed firewall cluster must be able to be manageable from the existing eSight NMS in terms of device housekeeping tasks and the SecoManager in terms of security policy management tasks.	OPTIONAL
29	The traffic between the corporate and internal users should be separated and secured. Please describe how this achieved	YES
30	Describe the methods of authentication supported	YES
31.1	Describe the encryption methods supported	YES
31.2	Proposed Access Points must support Wifi Protected Access 3 (WPA3) : WPA3-Personal including Simultaneous Authentication of Equals (SAE) WPA3-Enterprise with 192-bit minimum-strength security protocols and cryptographic tools to better protect sensitive data including: Authenticated encryption: 256-bit Galois/Counter Mode Protocol (GCMP-256) Key derivation and confirmation: 384-bit Hashed Message Authentication Mode (HMAC) with Secure	YES

	Hash Algorithm (HMAC-SHA384) Key establishment and authentication: Elliptic Curve Diffie-Hellman (ECDH) exchange and Elliptic Curve Digital Signature Algorithm (ECDSA) using a 384-bit elliptic curve Robust management frame protection: 256-bit Broadcast/Multicast Integrity Protocol Galois Message Authentication Code (BIP-GMAC-256) *If the requirements above are not met during the shipment of the equipment, the bidder must commit to deliver, install, and configure related equipment within year 2020 without any additional cost.	
32	Describe in detail any personal data stored anywhere in the offered solution, including type of data, storage location and retention period and mention how such personal data are related to GDPR (General Data Protection Regulation)	YES
33	The “Wireless Solution” should support in-bound and out-bound extended access control lists. At which level (i.e. IP, subnet, MAC, user)? Please describe in details	YES
34	The solution should support wireless intrusion detection/prevention (WIDS/WIPS), internal or external.	YES
35	The “Wireless Solution” should provide for remediation against rogue access points and denial of service attacks	YES
36	Describe how the offered solution manages interferences and how ensures client connectivity.	YES
38	The “Wireless Solution” should support data transmission encryption to ensure data transmission security.	YES
39	The “Wireless Solution” should support role-based permission and access control to prevent unauthorized access to data and functions.	YES
40	Authentication, Authorization and Accounting mechanisms should be implemented for “Wireless Solution” network devices, in the existing PPA NAC solution.	YES
	Roaming	
41	The offered “Wireless Solution” should support clients roaming. Describe relevant method.	YES
42	User re-authentication or re-login should not be required when roaming.	YES
43	User's subnet attributes (VLAN, ACLs, route policies) should follow the user when roaming	YES
44	Describe any mechanisms to control where users can physically roam throughout the infrastructure	YES

	System Capacity & Performance	
45	Describe the tools offered by the "Wireless Solution" to design for capacity as well as coverage.	Strongly preferred
46	The system should support setup and enforcement of minimum association rates. Please describe methods in detail.	YES
47	The "Wireless Solution" must have the ability to measure the wireless signal Channel quality, to identify, classify and proactively manage RF interference coming from non-wireless Wi-Fi sources like Bluetooth, DECT devices, wireless cameras etc.	YES
48	The system should support northbound API interfaces for portal integration (to support e-payment and billing applications)	YES
	Management	
49	Describe the management tools offered for monitoring the performance and availability of the offered "Wireless Solution". The proposed "Wireless Solution" should provide complete monitoring applications and tools for all the entire network components and end client points. The contractor should provide the appropriate licenses in order the "Wireless Solution" to be monitored on the existing NMS tools (Esight & Intermapper)	YES
50	Describe all additional tools available for the offered solution. If not offered, relative costs should be included in the Financial proposal **as optional**.	YES
51	Can the management tool schedule reports for automatic generation? If so, how are the reports generated and delivered? Can they be automatically sent to network engineers via email?	Optional
52	The "Wireless Solution" should allow to force a user off the network	YES
53	The "Wireless Solution" should allow to set up a user session timeout	YES
54	The "Wireless Solution" should allow tracking of a user's device associations, both current and historical	YES
55	The "Wireless Solution" should monitor a user's bandwidth consumption, system performance, roaming path, and time on the system	YES
56	What type of reporting is available when rogues are detected? Describe in detail if applicable.	YES

57	Does the system support exportation of management graphs and statistics files? If yes detailed description is required.	Optional
58	The Contractor should provide a detailed map of equipment and device locations including antenna type, direction, and gain information according to the offered architecture. Presentation of heat map information is required.	YES
	Time plan	
59	The Contractor should provide a detailed project implementation time schedule in phases for the delivery of the entire project taking under consideration all the required tasks (i.e. indicatively: equipment & software delivery, POC if needed or asked, installation, configuration, tests, training, etc.)	YES
	Training	
60	Classroom Training of at least 40 hours for 4 administrators.	YES
61	Hands-on training that will empower the Piraeus Port Authority S.A. personnel to proceed with the required tasks that need to be completed during the deployment period. On-the-job training of at least 16 hours, pertaining to the additional training of administrators of the application on the job, addressing any concerns and questions of the administrators.	YES
62	Industry certification vouchers for 4 Administrators.	YES
	Support	
63	The Contractor of the proposed equipment, software and "Wireless Solution" should guarantee by submitting appropriate letter (together with his offer) from the manufacturer, for the existence of spare parts and support of the proposed "Wireless Solution" for at least six (6) years from the go-live operational date for the entire PPA area.	YES
64	**Warranty:** The Contractor is required to provide at least three (3) years of obligatory Warranty services starting from the Final Acceptance of the Project, and optionally Maintenance services for the software and hardware that has been offered for at least three (3) years starting from the end of the Warranty Period. The warranty terms should be included in the Contract. The duration of the licenses should be at least equal to the duration of the warrantee period offered.	YES

	Preventive maintenance including: All Hardware offered, cabling, Electromechanical Equipment, software updates and upgrades during the requested warranty period, "Wireless Solution" Quality Assurance tests (See Appendix XXX), reports, availability reports and optimization for every four (4) months.	
	At least 36 man days of post implementation / consulting services for the deployed solutions, during the requested warranty period.	
	During the warrantee period the services provided will include the ones mentioned within SLA Services below.	
65	**Service Level Agreement**	YES
	Technical support shall be provided by telephone, e-mail and web site to individuals representing the authorized users of PPA. Technical support must be available 24x7x365 with response time in maximum 30 minutes from any incident.	
	Response should be addressed in accordance with the assigned priority level.	
	Priority 1 - Complete loss of service the situation is an emergency: Up to 4 hours for provision of workaround or malfunction complete repair. (Workaround constitute temporary solution until the proper resolution of the issue). Minimum uptime guarantee of 99,8 % per year.	
	Priority 2 - Partial loss of service related to software or hardware error: Next Business Day. Minimum uptime guarantee of 95 % per year.	
	In the event that the PPA requests in writing from the Contractor any additional service, the Contractor is obliged to send a written technical and financial offer with an implementation.	
	Subsequently, the Contractor will be required to initiate the implementation after written response of the PPA on the acceptance of the proposal.	
66	**Maintenance Services (Optional - After the duration of the warrantee period):**	YES
	The Maintenance services period begins with the end	

of the Warranty Period and lasts for at least three (3) years.	
The maintenance services should be equal to warranty services.	
With regard to maintenance costs, for the maintenance period, Candidates shall quote the relevant costs per year.	
One month before the end of the Warranty period, PPA is entitled to exercise its right to purchase optional Maintenance services for three years.	
It is obligatory for the Candidate to provide annual maintenance/support costs for the maintenance period which will be counted and evaluated in the frame of the Candidate's financial Offer, but it is in PPA's sole and absolute discretion to decide if it will purchase the maintenance/support or not.	

Chapter D. Solution Component Requirements

Indoor Access Points

Line #	Requirement	Mandatory	Response	Reference
	Indoor Access Point - Type A			
	Required Number of devices: ≥ 185	YES		
1	**General**			
1.1	Indicate the manufacturer and model	YES		
1.2	Be indoor grade with integrated antennas	YES		
2	**Wireless networking features**			
2.1	Centralized device and network management	YES		
2.2	Report how centralized management using wireless controllers (using hardware or software wifi Controllers)	YES		
2.3	Devices should use both 5GHz and 2.4GHz (dual band) frequencies simultaneously for user access	YES		
2.4	Supported Network Communication Templates	YES		
2.5	IEEE 802.11a / b / g / n / ac /ac Wave 2 and ax			
2.6	Maximum transmission power in accordance with applicable ETSI standards and national regulations.	YES		
2.7	Independent channel for scanning	YES		
2.8	Multiple SSID support (≥16 per radio)	YES		
2.9	Number of STA associations per access point	≥512		
2.10	Built-in Antennas Array to support Beamforming	YES		
2.11	Beamforming technology support	YES		
3	**IEEE 802.11ax capabilities**			
3.1	Supported channel widths: 20, 40, 80 and 160 MHz	YES		
3.2	DL & UL MU-MIMO (OFDMA)	YES		
3.3	1024QAM Modulation	YES		
3.4	Target Wake Time (TWT)	YES		
3.5	BSS Coloring	YES		
4	**Air Interface capabilities**			
4.1	Ability to support two and three radio configuration without requiring any hardware change / addition	YES		
4.2	Number of radios and MIMO elements: One radio @ 2.4GHz 2.4 GHz (4x4) Two radios @ 5 GHz One with 4x4 MIMO One with 8x8 MIMO	YES		
4.3	Number of Spatial Streams supported 2.4 GHz: 4 spatial streams 5 GHz: 12 spatial streams (8+4)	YES		
4.4	Power increment steps 1dBm	YES		
4.5	Aggregated Theoretical maximum rate of 10 Gbit/s	YES		

4.6	Air Interface HQoS scheduling	YES
5	**Interfaces**	
5.1	Wired network interfaces: 2 x 10G Electrical compatible with 100/1000/2.5GE/5GE 1 x 10G SFP+ receptacle compatible with GE/GPON/XGPON/XGSPON transceivers	YES
5.2	IEEE 802.3bt compliant PoE powering	YES
5.3	Built-in IoT Module supporting Zigbee/RFID/Thread	YES
5.4	Built-in BLE5.0	YES
6	**Environmental characteristics**	
6.1	Operating Temperature Range (Degrees Celcius)	-10 to + 50
6.2	Operating Humidity Range (non-condensing)	5% to 95%
6.3	Protection class of at least IP41	YES
7	**Security**	
7.1	Templates support ● WPA , WPA2 and WPA3 ● TKIP, AES encryption	YES
7.2	Support ● 802.1x Certification based Radius server including EAP (EAP-PEAP, EAP- TTLS, EAP-TLS) ● Rogue AP detection ● MAC authentication	YES
7.3	Support Access Control Lists (ACL's)	YES
7.4	Client (Guest) isolation support or similar functionality technology	YES
7.5	SNMP Authentication, Encryption support	YES
7.6	Support transparent transition of wireless clients when moving between network access points (fast roaming, zero packet loss)	YES
8	**Quality of service**	
8.1	Quality of Service -WMM (Wi-Fi Multimedia) feature support	YES
8.2	Ability to limit the available transmission rate per user and per SSID	YES
8.3	Automatically adjusts the access point's power transmission and channel selection to minimize interference and maximize network coverage and performance	YES
9	**Management methods**	
9.1	Management via the controller offered	YES
9.2	Wireless access devices can be configured automatically by the central controller of the wireless network.	YES
10	**Other characteristics**	
10.1	Wall mounting and ceiling mounting capability	YES
10.2	Weight	≤2kg
10.3	Ability to work as a standalone or controller based access point by changing firmware	YES
10.4	Embedded DHCP server mechanism, NAT when running in standalone mode	YES
10.5	Rogue Access Point detection	YES

10.6	Interference detection from non-WIFI sources	YES
10.7	Diagnostic LEDs	YES
10.8	Have or provide a mechanism to prevent easy removal / theft of AP	YES
11	**Standards Compliance**	
11.1	Safety Standards compliance with: EN 62368-1 EN 60950-1	YES
11.2	Radio Standards compliance with: EN 300 328 EN 301 893	YES
11.3	EMC Standards compliance with: EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 EN 55022 EN 55024	YES
11.4	EMF Standards compliance with: CENELEC EN 62311 CENELEC EN 50385	YES
11.5	RoHS Directive compliance with: 2002/95/EC 2011/65/EU	YES
11.6	Reach Regulation 1907/2006/EC compliance	YES
11.7	WEEE Directive compliance with: 2002/96/EC 2012/19/EU	YES
	Indoor Access Point - Type B	
	Required Number of devices: ≥69	YES
1	**General**	
1.1	Indicate the manufacturer and model	YES
1.2	Be indoor grade with integrated antennas	YES
2	**Wireless networking features**	
2.1	Centralized device and network management	YES
2.2	Report how centralized management using wireless controllers (using hardware or software wifi Controllers)	YES
2.3	Devices should use both 5GHz and 2.4GHz (dual band) frequencies simultaneously for user access	YES
2.4	Supported Network Communication Templates	YES
2.5	IEEE 802.11a / b / g / n / ac /ac Wave 2 and ax	
2.6	Maximum transmission power in accordance with applicable ETSI standards and national regulations.	YES
2.7	Independent channel for scanning	YES
2.8	Multiple SSID support (≥16 per radio)	YES
2.9	Number of STA associations per access point	≥512
2.10	Built-in Antennas Array to support Beamforming	YES

2.11	Beamforming technology support	YES
3	**IEEE 802.11ax capabilities**	
3.1	Supported channel widths: 20, 40, 80 and 160 MHz	YES
3.2	DL & UL MU-MIMO (OFDMA)	YES
3.3	1024QAM Modulation	YES
3.4	Target Wake Time (TWT)	YES
3.5	BSS Coloring	YES
4	**Air Interface capabilities**	
4.1	Ability to support two and three radio configuration without requiring any hardware change / addition	YES
4.2	Number of radios and MIMO elements: One radio @ 2.4GHz 2.4 GHz (2x2) MIMO One radio @ 5 GHz 5 GHz (4x4) MIMO	YES
4.3	Number of Spatial Streams supported 2.4 GHz: 2 spatial streams 5 GHz: 4 spatial streams	YES
4.4	Power increment steps 1dBm	YES
4.5	Aggregated Theoretical maximum rate of 5 Gbit/s	YES
4.6	Air Interface HQoS scheduling	YES
5	**Interfaces**	
5.1	Wired network interfaces: 1 x 1G Electrical compatible with 100/1000 1 x 5G Electrical compatible with 100/1000/2.5GE/5GE	YES
5.2	IEEE 802.3at compliant PoE powering	YES
5.3	Built-in IoT Module supporting Zigbee/RFID/Thread	YES
5.4	Built-in BLE5.0	YES
6	**Environmental characteristics**	
6.1	Operating Temperature Range (Degrees Celcius)	-10 to + 50
6.2	Operating Humidity Range (non-condensing)	5% to 95%
6.6	Protection class of at least IP41	YES
7	**Security**	
7.1	Templates support ● WPA , WPA2 and WPA3 ● TKIP, AES encryption	YES
7.2	Support ● 802.1x Certification based Radius server including EAP (EAP-PEAP, EAP- TTLS, EAP-TLS) ● Rogue AP detection ● MAC authentication	YES
7.3	Support Access Control Lists (ACL's)	YES
7.4	Client (Guest) isolation support or similar functionality technology	YES
7.5	SNMP Authentication, Encryption support	YES
7.6	Support transparent transition of wireless clients when moving between network access points (fast roaming, zero packet loss)	YES

8	**Quality of service**	
8.1	Quality of Service -WMM (Wi-Fi Multimedia) feature support	YES
8.2	Ability to limit the available transmission rate per user and per SSID	YES
8.3	Automatically adjusts the access point's power transmission and channel selection to minimize interference and maximize network coverage and performance	YES
9	**Management methods**	
9.1	Management via the controller offered	YES
9.2	Wireless access devices can be configured automatically by the central controller of the wireless network.	YES
10	**Other characteristics**	
10.1	Wall mounting and ceiling mounting capability	YES
10.2	Weight	≤1,6kg
10.3	Ability to work as a standalone or controller based access point by changing firmware	YES
10.4	Embedded DHCP server mechanism, NAT when running in standalone mode	YES
10.5	Rogue Access Point detection	YES
10.6	Interference detection from non-WIFI sources	YES
10.7	Diagnostic LEDs	YES
10.8	Have or provide a mechanism to prevent easy removal / theft of AP	YES
11	**Standards Compliance**	
11.1	Safety Standards compliance with: EN 62368-1 EN 60950-1	YES
11.2	Radio Standards compliance with: EN 300 328 EN 301 893	YES
11.3	EMC Standards compliance with: EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 EN 55022 EN 55024	YES
11.4	EMF Standards compliance with: CENELEC EN 62311 CENELEC EN 50385	YES
11.5	RoHS Directive compliance with: 2002/95/EC 2011/65/EU	YES
11.6	Reach Regulation 1907/2006/EC compliance	YES
11.7	WEEE Directive compliance with: 2002/96/EC 2012/19/EU	YES

Outdoor Access Points

Line #	Requirement	Mandatory	Response	Reference
	Outdoor Access Point - Type A			
	Required Number of devices: 20	YES		
1	**General**			
1.1	Indicate the manufacturer and model	YES		
1.2	Outdoor grade without requiring additional housing, with integrated antennas	YES		
2	**Wireless networking features**			
2.1	Centralized device and network management	YES		
2.2	Report how centralized management using wireless controllers (using hardware or software wifi Controllers)	YES		
2.3	Devices should use both 5GHz and 2.4GHz (dual band) frequencies simultaneously for user access	YES		
2.4	Supported Network Communication Templates	YES		
2.5	IEEE 802.11a / b / g / n / ac /ac Wave 2 and ax			
2.6	Maximum transmission power in accordance with applicable ETSI standards and national regulations.	YES		
2.7	Independent channel for scanning	YES		
2.8	Multiple SSID support (≥16 per radio)	YES		
2.9	Number of STA associations per access point	≥512		
2.10	Built-in Antennas Array to support Beamforming	YES		
2.11	Beamforming technology support	YES		
3	**IEEE 802.11ax capabilities**			
3.1	Supported channel widths: 20, 40, 80 and 160 MHz	YES		
3.2	DL & UL MU-MIMO (OFDMA)	YES		
3.3	1024QAM Modulation	YES		
3.4	Target Wake Time (TWT)	YES		
3.5	BSS Coloring	YES		
4	**Air Interface capabilities**			
4.1	Ability to support two and three radio configuration without requiring any hardware change / addition	YES		
4.2	Number of radios and MIMO elements: One radio @ 2.4GHz 2.4 GHz (4x4) MIMO One radio @ 5 GHz 5 GHz (4x4) MIMO	YES		
4.3	Number of Spatial Streams supported 2.4 GHz: 4 spatial streams 5 GHz: 4 spatial streams	YES		
4.4	Power increment steps 1dBm	YES		
4.5	Aggregated Theoretical maximum rate of 5 Gbit/s	YES		
4.6	Air Interface HQoS scheduling	YES		
5	**Interfaces**			

5.1	Wired network interfaces: 1 x 1G Electrical compatible with 100/1000 1 x 5G Electrical compatible with 100/1000/2.5GE/5GE 1 x 10G SFP+ receptacle compatible with GE/10GE/GPON/XGPON/XGSPON transceivers	YES
5.2	IEEE 802.3bt compliant PoE powering	YES
5.3	Built-in BLE5.0	YES
5.4	Built-in 6 kA/6 kV surge protection on Electrical Ethernet Ports	YES
6	**Environmental characteristics**	
6.1	Operating Temperature Range (Degrees Celcius)	-40 to + 65
6.2	Operating Humidity Range (non-condensing)	5% to 95%
6.3	Protection class of at least IP68	YES
7	**Security**	
7.1	Templates support ● WPA , WPA2 and WPA3 ● TKIP, AES encryption	YES
7.2	Support ● 802.1x Certification based Radius server including EAP (EAP-PEAP, EAP- TTLS, EAP-TLS) ● Rogue AP detection ● MAC authentication	YES
7.3	Support Access Control Lists (ACL's)	YES
7.4	Client (Guest) isolation support or similar functionality technology	YES
7.5	SNMP Authentication, Encryption support	YES
7.6	Support transparent transition of wireless clients when moving between network access points (fast roaming, zero packet loss)	YES
8	**Quality of service**	
8.1	Quality of Service -WMM (Wi-Fi Multimedia) feature support	YES
8.2	Ability to limit the available transmission rate per user and per SSID	YES
8.3	Automatically adjusts the access point's power transmission and channel selection to minimize interference and maximize network coverage and performance	YES
9	**Management methods**	
9.1	Management via the controller offered	YES
9.2	Wireless access devices can be configured automatically by the central controller of the wireless network.	YES
10	**Other characteristics**	
10.1	Wall mounting and ceiling mounting capability	YES
10.2	Weight	≤3.5kg

10.3	Ability to work as a standalone or controller based access point by changing firmware	YES
10.4	Embedded DHCP server mechanism, NAT when running in standalone mode	YES
10.5	Rogue Access Point detection	YES
10.6	Interference detection from non-WIFI sources	YES
10.7	Diagnostic LEDs	YES
10.8	Have or provide a mechanism to prevent easy removal / theft of AP	YES
11	**Standards Compliance**	
11.1	Safety Standards compliance with: EN 62368-1 EN 60950-1	YES
11.2	Radio Standards compliance with: EN 300 328 EN 301 893	YES
11.3	EMC Standards compliance with: EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 EN 55022 EN 55024	YES
11.4	EMF Standards compliance with: CENELEC EN 62311 CENELEC EN 50385	YES
11.5	RoHS Directive compliance with: 2002/95/EC 2011/65/EU	YES
11.6	Reach Regulation 1907/2006/EC compliance	YES
11.7	WEEE Directive compliance with: 2002/96/EC 2012/19/EU	YES
	Outdoor Access Point - Type B	
	Required Number of devices: ≥66	YES
	Required Number of Dual Band Antennas (4 per AP): ≥264	
1	**General**	
1.1	Indicate the manufacturer and model	YES
1.2	Outdoor grade without requiring additional housing, with external antennas	YES
2	**Wireless networking features**	
2.1	Centralized device and network management	YES
2.2	Report how centralized management using wireless controllers (using hardware or software wifi Controllers)	YES
2.3	Devices should use both 5GHz and 2.4GHz (dual	YES

	band) frequencies simultaneously for user access	
2.4	Supported Network Communication Templates	YES
2.5	IEEE 802.11a / b / g / n / ac /ac Wave 2 and ax	
2.6	Maximum transmission power in accordance with applicable ETSI standards and national regulations.	YES
2.7	Independent channel for scanning	YES
2.8	Multiple SSID support (≥16 per radio)	YES
2.9	Number of STA associations per access point	≥512
2.10	Built-in Antennas Array to support Beamforming	YES
2.11	Beamforming technology support	YES
3	**IEEE 802.11ax capabilities**	
3.1	Supported channel widths: 20, 40, 80 and 160 MHz	YES
3.2	DL & UL MU-MIMO (OFDMA)	YES
3.3	1024QAM Modulation	YES
3.4	Target Wake Time (TWT)	YES
3.5	BSS Coloring	YES
4	**Air Interface capabilities**	
4.1	Ability to support two and three radio configuration without requiring any hardware change / addition	YES
4.2	Number of radios and MIMO elements: One radio @ 2.4GHz 2.4 GHz (4x4) MIMO One radio @ 5 GHz 5 GHz (4x4) MIMO	YES
4.3	Number of Spatial Streams supported 2.4 GHz: 4 spatial streams 5 GHz: 4 spatial streams	YES
4.4	Power increment steps 1dBm	YES
4.5	Aggregated Theoretical maximum rate of 5 Gbit/s	YES
4.6	Air Interface HQoS scheduling	YES
4.7	Built-in 5 kA surge protection on The Antenna Ports	YES
5	**Interfaces**	
5.1	Wired network interfaces: 1 x 1G Electrical compatible with 100/1000 1 x 5G Electrical compatible with 100/1000/2.5GE/5GE 1 x 10G SFP+ receptacle compatible with GE/10GE/GPON/XGPON/XGSPON transceivers	YES
5.2	IEEE 802.3bt compliant PoE powering	YES
5.3	Built-in BLE5.0	YES
5.4	Built-in 6 kA/6 kV surge protection on Electrical Ethernet Ports	YES
6	**Environmental characteristics**	
6.1	Operating Temperature Range (Degrees Celcius)	-40 to + 65
6.2	Operating Humidity Range (non-condensing)	5% to 95%
6.3	Protection class of at least IP68	YES
7	**Security**	
7.1	Templates support	YES

	● WPA , WPA2 and WPA3	
	● TKIP, AES encryption	
7.2	Support ● 802.1x Certification based Radius server including EAP (EAP-PEAP, EAP- TTLS, EAP-TLS) ● Rogue AP detection ● MAC authentication	YES
7.3	Support Access Control Lists (ACL's)	YES
7.4	Client (Guest) isolation support or similar functionality technology	YES
7.5	SNMP Authentication, Encryption support	YES
7.6	Support transparent transition of wireless clients when moving between network access points (fast roaming, zero packet loss)	YES
8	**Quality of service**	
8.1	Quality of Service -WMM (Wi-Fi Multimedia) feature support	YES
8.2	Ability to limit the available transmission rate per user and per SSID	YES
8.3	Automatically adjusts the access point's power transmission and channel selection to minimize interference and maximize network coverage and performance	YES
9	**Management methods**	
9.1	Management via the controller offered	YES
9.2	Wireless access devices can be configured automatically by the central controller of the wireless network.	YES
10	**Other characteristics**	
10.1	Wall mounting and ceiling mounting capability	YES
10.2	Weight	≤3.5kg
10.3	Ability to work as a standalone or controller based access point by changing firmware	YES
10.4	Embedded DHCP server mechanism, NAT when running in standalone mode	YES
10.5	Rogue Access Point detection	YES
10.6	Interference detection from non-WIFI sources	YES
10.7	Diagnostic LEDs	YES
10.8	Have or provide a mechanism to prevent easy removal / theft of AP	YES
11	**Standards Compliance**	
11.1	Safety Standards compliance with: EN 62368-1 EN 60950-1	YES
11.2	Radio Standards compliance with: EN 300 328 EN 301 893	YES

11.3	EMC Standards compliance with: EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 EN 55022 EN 55024	YES		
11.4	EMF Standards compliance with: CENELEC EN 62311 CENELEC EN 50385	YES		
11.5	RoHS Directive compliance with: 2002/95/EC 2011/65/EU	YES		
11.6	Reach Regulation 1907/2006/EC compliance	YES		
11.7	WEEE Directive compliance with: 2002/96/EC 2012/19/EU	YES		

WLAN Controller

Line #	Requirement	Mandatory	Response	Reference
	WLAN AC			
	Required number of Devices: 4 (2 pcs handling internal users + radio resources, 2 pcs handling external users)	YES		
	Required number of AP Licenses: ≥340	YES		
1	**Scale & Performance**			
1.1	Must support up to 2000 Access Points	YES		
1.2	Must support up to 30.000 Users	YES		
1.3	Layer 3 forwarding performance ≥60 Gbps	YES		
2	**Interfaces**			
2.1	The AC must provide two 40G optical ports, 12 10GE optical ports, and 8 GE electrical ports	YES		
3	**Power Supplies**			
3.1	A single AC supports dual power backup; it supports single power supply for hot swapping of power modules	optional		
4	**Routing**			
4.1	Support static routing, RIP-1 / RIP-2, OSPF, BGP, IS-IS, routing policy, policy routing, provide official website links and screenshots	YES		
5	**Authentication & Encryption**			
5.1	Support MAC address authentication, 802.1x authentication (EAP-PAP, EAP-MD5, EAP-PEAP, EAP-TLS, EAP-TTLS), Portal authentication, MAC + Portal mixed authentication, WAPI authentication; Support WPA standard, WEP (WEP64 / WEP128), TKIP, CCMP; Built-in Portal / AAA server, can provide users with Portal authentication / 802.1X service;	YES		

5.2	Supports PPSK, AC can assign different PSK keys to different terminals under the same SSID, without the need of other system support	YES
6	**IPv6 Support**	
6.1	The AP supports IPV4 and IPV6 dual stacks to establish capwap tunnels with the AC, and is managed normally, and provides third-party authoritative agency test reports or official website screenshots	YES
6.2	Supports IPV6 dynamic routing protocols: OSPFV3, BGP4 +, provides product manuals and can be found on the official website	YES
7	**Functional characteristics**	
7.1	Support intelligent roaming based on 802.11k and 802.11v protocols, so that clients with low roaming sensitivity can roam to the best AP, and provide authoritative third-party agency test reports;	YES
7.2	Supports application identification and can set corresponding management and control policies for different applications identified; if a license is required to support it, configure a license with the same number of APs;	YES
7.3	The two ACs can communicate with each other across the three-layer network through the capwap tunnel to ensure that AP visitor traffic can be forwarded directly to the AC in the DMZ through the local AC tunnel, providing configuration screenshot	YES
7.4	Support VIP user identification and priority scheduling, VIP users can ignore any speed limit policy and get priority improvement of air interface messages	YES
7.5	Support URL filtering, allow or prohibit users to access certain web resources, provide proof of official website link; if a license is required to support, please configure the same number of licenses as AP	YES
7.6	Support anti-virus function, provide proof of official website link	optio nal
7.7	Support intrusion prevention, detect and stop intrusion behaviors (including buffer overflow attacks, Trojans, worms, etc.), and provide official website link certification	YES
7.8	Support band guidance function, can automatically guide dual-band wireless terminals to work in the 5.8GHz band	YES
7.9	For radios that support dual 5G, 2.4G is automatically switched to 5G through auto-negotiation between APs to reduce 2.4G co-channel interference and increase system capacity.	YES
7.10	The AC supports spectrum analysis functions. It must be able to support view real-time FFT plots, channel metrics, FFT duty cycles, interference strength, and channel quality plots. If you need a license to support it, configure the same license as the number of APs	YES
7.11	Must support SSID broadcast scheduling with predefined time range	YES
8	**Reliability**	
8.1	Support equipment redundant backup function, support 1 + 1 or N	YES

	+ 1 backup, and support configuration synchronization between active and standby AC			
8.2	Support for WAN authentication bypass. After CAPWAP link failure, MAC or 802.1x based authentication falls back to local authentication.	YES		
8.3	The AC and AP can be upgraded independently, and the service is not interrupted during the upgrade in the dual AC redundancy state;	YES		
9	**Management**			
9.1	Support CLI, WEB management, SSH management, support SNMP V1 / V2c / V3;	YES		
9.2	Provide overall wireless network performance monitoring, support AC / AP / RF / terminal performance monitoring	YES		
9.3	AC supports visual end-to-end fault diagnosis, displaying user, AP, AC connection diagrams, presenting the root cause of the fault and suggestions for handling, need to provide AC display screenshot	YES		
9.4	Support intelligent upgrade, automatically download the latest software from the cloud, upgrade according to the plan, and provide an authoritative third-party agency Tolly test report	optional		

External User Firewalls

Line #	Requirement	Mandatory	Response	Reference
	External User Firewall			
	Required Number of devices: 2	YES		
	Required Number of 40G Transceivers (SM): 8	YES		
	Required Number of 10G Transceivers (SM): 4	YES		
1	**General**			
1.1	Must be a compact Rack Mountable 1 RU high device	YES		
1.2	Must have a multi-core CPU architecture	YES		
1.3	Must have dual, field replaceable AC power supplies	YES		
1.4	Must have field replaceabe fan module	YES		
1.5	Must have front-to-rear ventilation	YES		
2	**Interfaces**			
2.1	Network Connections 10GE optical ports ≥ 20 40G interfaces ≥ 4 100G interfaces ≥ 2	YES		
2.2	Dedicated High Availability Interfaces 10GE HA interfaces ≥ 2	YES		
2.3	Management / External Storage Interface USB 3.0	YES		
3	**Performance**			

3.1	Throughput ≥ 100 Gbps (IMIX)	YES
3.2	Maximum number of concurrent connections ≥35,000,000	YES
3.3	Number of new connections per second ≥ 1,200,000	YES
3.4	IPS throughput ≥ 40 Gbps	YES
3.5	IPSec throughput ≥100 Gbps	YES
3.6	SSL_VPN throughput ≥ 10 Gbps	YES
3.7	SSL proxy throughput ≥ 12 Gbps	YES
4	**Policy Control**	
4.1	Allows users to configure security policies based on time, user/user group/security group, application-layer protocol, geographical location, IP address, port, domain name group, URL category, access type, terminal type, device group, vlanID and content security	YES
5	**Routing**	
5.1	Must support static routes, policy-based routing, and routing protocols such as RIP, OSPF, BGP, and IS-IS.	YES
5.2	Policy-based routing Must support the following matching conditions: source IP address, destination IP address, service type, application type, user/user group/security group, inbound interface, and DSCP priority	YES
6	**IPv6 Support**	
6.1	Must support the IPv6 protocol stack, IPv6 traversal technology, and IPv6 routing protocols (Provide a copy of the "IPv6 Ready Phase-2" certificate)	YES
6.2	Must support IPv6 over IPv4 GRE tunnels and 6RD tunnels.	YES
7	**Protocol Identification**	
7.1	Identifies over 5000 application-layer protocols, including SIP and proprietary protocols of mainstream security vendors.	YES
8	**Traffic Control**	
8.1	Must support application-layer protocol-based traffic control policies, including setting the maximum bandwidth, guaranteed bandwidth, and protocol traffic priority.	YES
8.2	Must support bandwidth guarantee based on users and IP addresses.	YES
8.3	Must support the maximum number of connections per IP address or user.	YES
8.4	Must support user traffic quota management	YES
8.5	Must support traffic shaping	YES
8.6	Must support geographical location-based traffic and threat analysis.	YES
9	**Policy Management**	
9.1	Must support the fuzzy query of policies, policy groups, and policy rule tags, facilitating policy management and maintenance.	YES
9.2	Must support the translation of port-based security policies to application-based security policies, Must support the analysis of policy risks and redundancy, and provides security policy tuning suggestions	YES
9.3	Must support interconnection with FireMon to implement policy	YES

	matching, redundancy analysis, and risk optimization.	
9.4	Must support interconnection with AlgoSec to implement policy matching, redundancy analysis, and risk optimization.	YES
10	**Data Security**	
10.1	Must support data leak prevention to identify and filter files and content (different types of information, such as ID cards, credit cards, debit cards, and social security cards) in transit	YES
10.2	Must support DNS filtering to improve web page filtering performance.	YES
10.3	Must support SafeSearch to filter out unhealthy content returned by search engines such as Google.	YES
11	**DDoS Defense**	
11.1	Must support application-layer flood attacks such as HTTP, HTTPS, DNS, and SIP, Must support traffic auto-learning, the setting of the auto-learning time, and automatic generation of anti-DDoS policies.	YES
11.2	Must support IP reputation.	YES
12	**Network Address Translation**	
12.1	Must support full NAT functions and NAT ALG for multiple application-layer protocols, including ILS, DNS, PPTP, SIP, FTP, ICQ, RTSP, QQ, MSN, and MMS.	YES
12.2	Must support Source NAT automatic detection and exclusion of invalid addresses in NAT address pools.	YES
12.3	Must support the generation of an alarm if the usage of the Source NAT address pool exceeds the threshold.	YES
12.4	Must support triplet NAT smart fullcone.	YES
13	**Intrusion Prevention and Antivirus**	
13.1	Must support attack detection and prevention based on over 8000 signatures.	YES
13.2	Must support the customization of intrusion prevention policy templates based on scenarios.	YES
13.3	Must support brute-force cracking prevention for common application services (HTTP, FTP, SSH, SMTP, and IMAP) and database software (MySQL, Oracle, and MSSQL).	YES
13.4	Recommended by the NSS Labs in terms of the IPS detection rate.	YES
13.5	Must support malicious domain name-based filtering to block C&C.	YES
13.6	Must support antivirus for protocols such as HTTP, FTP, SMTP, POP3, IMAP, and NFS.	YES
13.7	**IPS, Antivirus, URL content filtering licenses should be included for 36 months**	YES
14	**Encrypted Traffic Security Protection**	
14.1	Decrypts HTTPS, POP3S, SMTPS, and IMAPS traffic and performs data filtering, audit, and security protection on the decrypted traffic.	YES
14.2	Must support refined decryption based on URL categories to improve decryption performance.	YES
14.3	Decrypts traffic and mirrors it to third-party devices for auditing and security detection.	YES

15	**Centralized Management and Usability**	
15.1	Must support automatic registration to a cloud management platform, so that the platform can perform unified management and O&M on the firewall.	YES
15.2	Must support upgrade using a USB flash drive to reduce O&M costs.	YES
15.3	Provides northbound interfaces such as RESTCONF and NETCONF APIs to connect to third-party management platforms.	YES
16	**Intelligent Threat Prevention**	
16.1	Must support interworking with the cloud sandbox for APT defense.	optio nal
16.2	Must support interworking with the local sandbox for APT defense.	optio nal
16.3	Must support interworking with the cloud sandbox and local sandbox. Sensitive files can be inspected in the local sandbox, and common files can be uploaded to the cloud sandbox. This function protects customers' sensitive data and improves cloud detection capabilities.	optio nal
16.4	Must support interworking with the Big Data intelligent security analysis system to implement posture awareness, display network-wide threats, and generate policies to block threats.	optio nal
16.5	Must support interworking with the cloud web reputation system, file reputation system, and IP reputation system to block threats in real time.	optio nal
17	**Network Access User Authentication**	
17.1	Must support AD SSO, RADIUS SSO, NTLM authentication, no authentication, WeChat authentication, MAC authentication and SMS authentication.	YES
17.2	Must support dynamic security groups to dynamically authorize horizontal organizations.	YES
17.3	Must support multiple authentication domains to meet the requirements of independent management and authentication of multiple branches.	YES
17.4	Must support portal page customization and questionnaires for marketing promotion.	YES
18	**Reliability**	
18.1	Must support BFD link detection and association of BFD and VRRP/OSPF to implement rapid active/standby switchover.	YES
18.2	Must support the smooth upgrade of HRP. In the upgrade window, the software of different versions can be used for hot standby.	YES
19	**Uplink Selection**	
19.1	Intelligently selects carrier links based on destination IP addresses, Must support active/standby interface configuration and load balancing by percentage.	YES
19.2	Virtual Private Network	YES
19.3	Must support IPSec intelligent uplink selection to select the best link based on link quality detection.	YES
19.4	Must support dynamic provisioning of VPN tunnels in hub & spoke	YES

	topology. VPN tunnels can be established between enterprise branches for encrypted communication.			
20	**Product Certification**			
20.1	Has been listed in Gartner Magic Quadrant for four consecutive years. (Provide proof materials.)	YES		
20.2	Has obtained the certificate issued by the TL 9000 quality management system. (Provide the certificate copy, certification query link, and screenshot.)	optional		
20.3	Has become the MAPP partner. MAPP partners can early obtain the latest information about Microsoft vulnerabilities to accelerate threat response. (Provide a screenshot to prove being an MAPP partner.)	YES		

Network Equipment

Line #	Requirement	Mandatory	Response	Reference
	PPA would like to maintain uniformity in the Network Infrastructure. For that reason, the offered switches that will be needed after the Site Survey, should be compatible to the following table or the updated equal type (high preferable).			
1	**Vendor**			
1.1	Huawei	YES		
2	**Type**			
2.1	S5720-12TP-PWR-LI-AC	YES		
2.2	S5720-28X-PWR-SI-AC	YES		
2.3	S5720-52X-PWR-SI-ACF	YES		
2.4	AR550C-2C6GE	YES		
2.5	S6720-30C-EI-24S-AC	YES		
2.6	AR6121 Net Engine	YES		
3	**Warrantee**			
3.1	All the offered switches should be backed by Co-Care Standard 9x5xNBD Service-36Month(s)	YES		
4	**Licences**			
4.1	All the offered switches should be backed by NMS Huawei Esight license	YES		
5	**SFP modules**			
5.1	In the implementation, each offered switch should have at least 2 pair of optical connections (with their corresponding SFPs modules) 1G, 0.5 Km (for AR550C) and 10G, 10 Km (for all the other types), 4 in total per switch.	YES		
6	**Power Suppliers**			
6.1	Double power suppliers in each switch (if the device supports them)	YES		

In addition to the above table PPA would like to purchase the following:

Line #	Requirement	Qty.	Mandatory	Response	Reference
	PPA would like to maintain uniformity in the Network Infrastructure. For that reason, the offered switches that will be extra needed, should be compatible to the following table or the updated equal type (high preferable).				
1	**Vendor**				
1.1	Huawei		YES		
2	**Type**				
2.1	S5720-28X-PWR-SI-AC	1	YES		
2.2	AR550C-2C6GE	13	YES		
2.3	S5720-12TP-PWR-LI-AC	4	YES		
3	**Warrantee**				
3.1	All the offered switches should be backed by Co-Care Standard 9x5xNBD Service-36Month(s)		YES		
4	**Licences**				
4.1	All the offered switches should be backed by NMS Huawei Esight license		YES		
5	**SFP modules**				
5.1	Single Mode 1G, 10 KM, SFP modules for the compatible with switch Huawei AR550C-2C6GE	20	YES		
5.2	Multi-Mode SFP module 1G, 0.5 Km, for the compatible with switch Huawei AR550C-2C6GE	36	YES		
5.3	Single mode SFP 1G, 10 Km for switch for the compatible with Huawei S5720-28X-PWR-SI-AC	36	YES		
5.4	Multi-mode SFP 1G, 0.5 Km for switch for the compatible with Huawei S5720-28X-PWR-SI-AC	26	YES		
6	**Power Suppliers**				
6.1	Double power suppliers in each switch (if the device supports them)		YES		

Outside Plant Cabinets

Line #	Requirement	Mandatory	Response	Reference
1	Heavy industrial type	YES		
2	IP66 according to IEC 60529	YES		
3	IK10 according to IEC62262	YES		
4	Made of polyester with fiberglass reinforcement suitable for installation in an environment with high temperatures.	YES		
5	The dimensions of the pillar must be at least	YES		

	1000X800X350.	
6	Support base 40cm high with removable panels. All parts must be hot dip galvanized	YES
7	Layout drawing of all pillar sides.	YES
8	It must bring luminaire with switch.	YES
9	It must bring door terminal switch with NC contact.	YES
10	It must bring thermostat.	YES
11	It must bring 2 fans controlled by the thermostat (one for inlet and one for air extraction) with blinds and rain hoods INOX 304	YES
12	Fans must be axial 230VAC 120x120x38mm	YES
13	Fan must be bearing or maglev technology.	YES
14	The minimum airflow of each fan must be at least 140m3 / h	YES
15	Each fan must bring metallic dust filter suitable for electromagnetic shielding.	YES
16	Pillar and must protect by inox 304 rain hood	YES
17	The distribution of AC as well as the distribution of DC must be done using MCBs 1+N. Exception is the supply of fans and the luminaire that can be done using ceramic fuses.	YES
18	All RCDs must be Type F.	YES
19	All distribution material except SPDs and terminal blocks must be from the same manufacturer. Acceptable manufacturers of distribution material are Schneider, Legrand, ABB, and Siemens.	YES
20	It must bring cable glands for each cable.	YES
21	Signaling: All device contacts (switches, PSU fault, etc.) must be terminated in two-story choc block in the low voltage area	YES
22	At each pillar must be included a din rail 12port Cat6A patch panel	YES
23	At each pillar must be include a din rail 24port fiber optic LC single mode patch panel	YES
24	The following industrial power supplies and batteries must be installed inside the pillar. The following must be considered in the design. All power supplies as well as the modules of the blocking diodes must be of the same manufacturer with this of PSUs. The minimum distance between the power supplies should be 15mm UTP cables which terminated in the Patch Panel must be in contact with those of the surge arrestors NOTE: All the bolds for the connection of the	YES

cabinet with the support base must be at least stainless steel material

DC/DC Converter 24V,5A 2 pcs/pillar

Line #	Requirement	Mandatory	Response	Reference
	General			
1	Isolated 24Vdc Output	YES		
2	Efficiency up to 90.3%	YES		
3	20% Output Power Reserves	YES		
4	Full Power Between -25°C and +60°C	YES		
5	Minimal Inrush Current Surge	YES		
6	Operational temperature -25°C to +70°C	YES		
7	Operational Humidity 5 to 95% r.H.	YES		
8	Vibration sinusoidal 2-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2 hours / axis IEC 60068-2-6	YES		
9	Shock 30g 6ms, 20g 11ms 3 bumps / direction, 18 bumps in total IEC 60068-2-27	YES		
10	Over-temperature protection	YES		
11	Output shut-down with automatic restart	YES		
12	Isolation resistance input to output 500Vdc > 5MOhm	YES		
	Din rail mount	YES		
	Input			
1	DC-Input 36.0-60.0Vdc full specified	YES		
2	Input inrush current typ. 0.6A peak (-25°C to +70°C, input: 48Vdc)	YES		
3	Soft-start function: Yes	YES		
4	Reverse voltage protection: Yes	YES		
5	Input transient protection: MOV Metal Oxide Varistor	YES		
	Output			
1	Output voltage DC 24-48V (adjustable)	YES		
2	Load regulation max. 100mV (static value, 0A-5A)	YES		
3	Output current 5 – 4.3A (ambient < 60°C)	YES		
4	Output ripple max. 50mVpp	YES		
5	Output de-rating 1.6W/°C 45-60°C 3W/°C 60-70°C	YES		
6	Output protection Electronically protected against overload, no-load and short-circuits	YES		
7	Output over-voltage protection typ. 31Vdc max. 32Vdc. The output shuts down and automatically attempts to restart.	YES		
9	Classification of output voltage SELV IEC/EN 60950-1,PELV IEC/EN 60204-1, EN	YES		

	50178, IEC 62477-1, IEC 60364-4-41			
10	Over-voltage category III IEC 62477-1, EN 50178, altitudes up to 2000m II altitudes from 2000m to 6000m	YES		
11	Degree of pollution, 2, IEC 62477-1, EN 50178, not conductive	YES		
12	Efficiency: 90.3% at 24V,5A	YES		
13	Losses: 12.9W at 24V,5A	YES		
14	Lifetime expectancy 64 000h at 24V, 5A and 40°C	YES		
15	MTBF SN 29500, IEC 61709 951 000h at 24V, 5A and 40°C	YES		
16	MTBF MIL HDBK 217F 559 000h at 24V, 5A and 40°C; Ground Benign GB40	YES		
17	Dielectric Strength Type test 60sec Input-Output 1500Vac Chassis-Output 500Vac Chassis- Input 1500Vac	YES		
18	EMC Immunity According to EN 61000-4-2 Criterion A, EN 61000-4-3 Criterion A, EN 61000-4-4 Criterion A, EN 61000-4-5 Criterion A, EN 61000-4-6 Criterion A	YES		
19	EMC Emission according to EN 61000-6-3, EN 61000-6-4, IEC/CISPR 16-1-2, IEC/CISPR 16-2-1, EN 55011 class B, EN 55022 class B	YES		
21	Approvals/Standards EC Declaration of Conformity approval, Marine approval (GL, ABS etc),RoHS Directive	YES		
22	Warranty 3 years	YES		

DC/DC Converter 48V,5A 1pcs/pillar

Line #	**Requirement**	**Mandatory**	**Response**	**Reference**
	<u>General</u>			
1	Isolated 48Vdc Output	YES		
2	Efficiency up to 95.1%	YES		
3	20% Output Power Reserves	YES		
4	Full Power Between -25°C and +60°C	YES		
5	Minimal Inrush Current Surg	YES		
6	Operational temperature -25°C to +70°C	YES		
7	Operational Humidity 5 to 95% r.H.	YES		
8	Vibration sinusoidal, 2-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2 hours / axis IEC 60068-2-6	YES		
9	Shock 30g 6ms, 20g 11ms 3 bumps / direction, 18 bumps in total IEC 60068-2-27	YES		

10	Output shut-down with automatic restart	YES		
11	Isolation resistance input to output 500Vdc > 5MOhm	YES		
12	Din rail mount	YES		
	Input			
1	DC-Input: 36.0-60.0Vdc full specified	YES		
2	Input inrush current typ. 7A peak	YES		
3	Soft-start function: Yes	YES		
4	Reverse voltage protection: Yes	YES		
5	Input transient protection: MOV Metal Oxide Varistor	YES		
	Output	YES		
1	Output voltage: DC 48-56V (adjustable)	YES		
2	Load regulation: 200mV (static value, 0A-5A)	YES		
3	Output current: 5A (ambient 60°C)	YES		
4	Output ripple: 100mVpp	YES		
5	Output protection: Continuous current	YES		
6	Output over-voltage protection typ. 31Vdc max. 32Vdc The output shuts down and automatically attempts to restart.	YES		
7	Degree of pollution: 2, IEC 62477-1, not conductive	YES		
8	Losses: 12.4W	YES		
9	Lifetime expectancy: 160 000h at 5A and 40°C	YES		
10	MTBF SN 29500, IEC 61709 951 000h at 24V, 5A and 40°C	YES		
11	MTBF MIL HDBK 217F 559 000h at 24V, 5A and 40°C; Ground Benign GB40	YES		
12	Dielectric Strength Type test 60sec Input-Output 1500Vac Chassis-Output 500Vac Chassis- Input 1500Vac	YES		
13	EMC Immunity According to EN61000-4-2 Criterion A, EN61000-4-3 Criterion A, EN 61000-4-4 Criterion A, EN 61000-4-5 Criterion A, EN 61000-4-6 Criterion A	YES		
14	EMC Emission according to IEC/CISPR 16-1-2, IEC/CISPR 16-2-1, EN 55011 class B, EN 55022 class B	YES		
16	Approvals/Standards EC Declaration of Conformity approval, Marine approval (GL, ABS etc), RoHS Directive.	YES		
17	Warranty 3 years	YES		

AC/DC 48V,10A 2pcs/pillar

Line #	Requirement	Mandatory	Response	Reference

	General	
1	48Vdc Output	YES
2	Efficiency up to 96,3%	YES
3	20% Output Power Reserves	YES
4	Full Power Between -25°C and +60°C	YES
5	Minimal Inrush Current Surg	YES
6	Operational temperature -25°C to +70°C	YES
7	Operational Humidity 5 to 95% r.H.	YES
8	Vibration sinusoidal 2-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2 hours / axis IEC 60068-2-6	YES
9	Shock 30g 6ms, 20g 11ms 3 bumps / direction, 18 bumps in total IEC 60068-2-27	YES
10	Output shut-down with automatic restart	YES
11	Isolation resistance input to output 500Vdc > 500MOhm	YES
12	Din rail mount	YES
	Input	YES
1	AC-Input: 85-264Vac continuous operation	YES
2	Input current: 2,23A at 230Vac	YES
3	Input inrush current: typ. 4,5A peak at 230Vac	YES
4	Power factor: typ.0.980 at 230V	YES
5	Input transient protection: MOV Metal Oxide Varistor	YES
	Output	YES
1	Output voltage: DC 48V	YES
2	Load regulation: 150mV (static value, 0A-10A, single use mode)	YES
3	Output current: 10A ambient 60°C, 12A ambient <45oC	YES
4	Output ripple: 50mVpp	YES
5	Output temperature protection	YES
6	Output over-voltage protection typ. 58,5Vdc max. 60Vdc The output shuts down and automatically attempts to restart.	YES
7	Degree of pollution: 2, IEC 62477-1,not conductive	YES
8	Losses : 18,4W at 48V 10A	YES
9	Lifetime expectancy: 110 000h at 10A and 40°C	YES
10	MTBF SN 29500, IEC 61709 951000h at 48V, 10A and 40°C	YES
11	MTBF MIL HDBK 217F 559000h at 48V, 10A and 40°C; Ground Benign GB40	YES
12	Dielectric Strength Type test 60sec Input-Output 3000Vac Earth -Output 1000Vac Earth- Input 2500Vac	YES

13	EMC Immunity According to EN61000-4-2 Criterion A, EN61000-4-3 Criterion A, EN61000-4-4 Criterion A, EN61000-4-5 Criterion A, EN61000-4-6 Criterion A, EN61000-4-11 Criterion A, VDE 0160 Criterion A	YES
14	EMC Emission according to EN55011, EN55022,FCC Part 15, CISPR 11,CISPR Class B	YES
16	Approvals/Standards EC Declaration of Conformity approval, REACH Directive, Safety Isolating Transformer – IEC/EN 61558	YES
17	Warranty 3 years	YES

Blocking Diodes 24-56V,40A 1pcs/pillar

Line #	Requirement	Mandatory	Response	Reference
	General	YES		
1	Special design for N+1 and 1+1 Redundant Systems	YES		
2	Dual Input with Single Output	YES		
4	Maximum 60mV Voltage Drop at 20A Output Current	YES		
5	Maximum 1.8W Loss at 20A and 5.4W at 40A Output Current	YES		
6	160% (65A) Peak Load Capability	YES		
7	Reverse Input Polarity Protection	YES		
8	Full Power Between -40°C and +60°C	YES		
9	Operational Humidity 5 to 95% r.H.	YES		
10	Vibration sinusoidal 2-17.8Hz: ±1.6mm; 17.8-500Hz: 2g 2 hours / axis IEC 60068-2-6	YES		
11	Shock 30g 6ms, 20g 11ms 3 bumps / direction, 18 bumps in total IEC 60068-2-27	YES		
	Input- Output characteristics	YES		
1	Input voltage: DC24-56V ±15%	YES		
2	Input voltage range: 20.4-64.4 Vdc	YES		
3	Input current: 2X0-20A continuous	YES		
4	Output current: 40A continuous	YES		
5	Reverse current: 1mA at 48V per unit -40oC to + 70oC	YES		
7	Output transient protection	YES		
8	Degree of pollution, 2, IEC 62103,EN 50178, not conductive	YES		
9	Losses 5,4W at 48V input 2X20A 1.8W at 48V input 2X10A	YES		
10	Lifetime expectancy 222 000h input 2X20 A at 48V and 40°C	YES		

	448 000h input 2X10A at 48V and 40oC			
11	MTBF SN 29500, IEC 61709 6656000h input 2X10 A at 48V and 40°C 4098000h input 2X20A at 48V and 40oC	YES		
12	MTBF MIL HDBK 217F 211000h input 2X10 A at 48V and 40°C 178000h input 2X20A at 48V and 40oC Ground Benign GB40	YES		
13	Dielectric Strength Type test 60sec Input/Output -Chassis 500Vac	YES		
14	EMC Immunity According to EN 61000-4-2 Criterion A EN 61000-4-3 Criterion A EN 61000-4-4 Criterion A EN 61000-4-5 Criterion A EN 61000-4-6 Criterion A EN 61000-4-8 Criterion A	YES		
15	EMC Emission according to EN 55011,EN55022 Class B,IEC/CISPR 16-1-2,IEC/CISPR 16-2-1	YES		
16	Temperature range -40°C to +70°C operational	YES		
17	Approvals/Standards EC Declaration of Conformity approval, Marine	YES		
18	Warranty 3 years			

All above devices (PSU AC/DC, PSU DC/DC & Blocking Diodes) must be made from the same manufacturer

Ethernet Remote I/O

Line #	Requirement	Mandatory	Response	Reference
1	At least 12 Digital inputs	YES		
2	Connection type 2 x RJ45 plug-in connectors	YES		
3	Communication protocols Modbus/TCP SNMP	YES		
4	Voltage supply 24 V DC +20 %/ -15 %, via the system bus	YES		
5	Input voltage, high > 11 V	YES		
6	Input voltage, low < 5 V	YES		
7	Operating temperature -40 °C ... +70 °C	YES		
8	Air humidity (operation) 10% to 95%, noncondensing as per DIN EN 61131-2	YES		
9	Approvals/Standards EC Declaration of Conformity approval, Shock IEC 60068-2-27 Vibration IEC 60068-2-6	YES		
10	Warranty 3 years	YES		

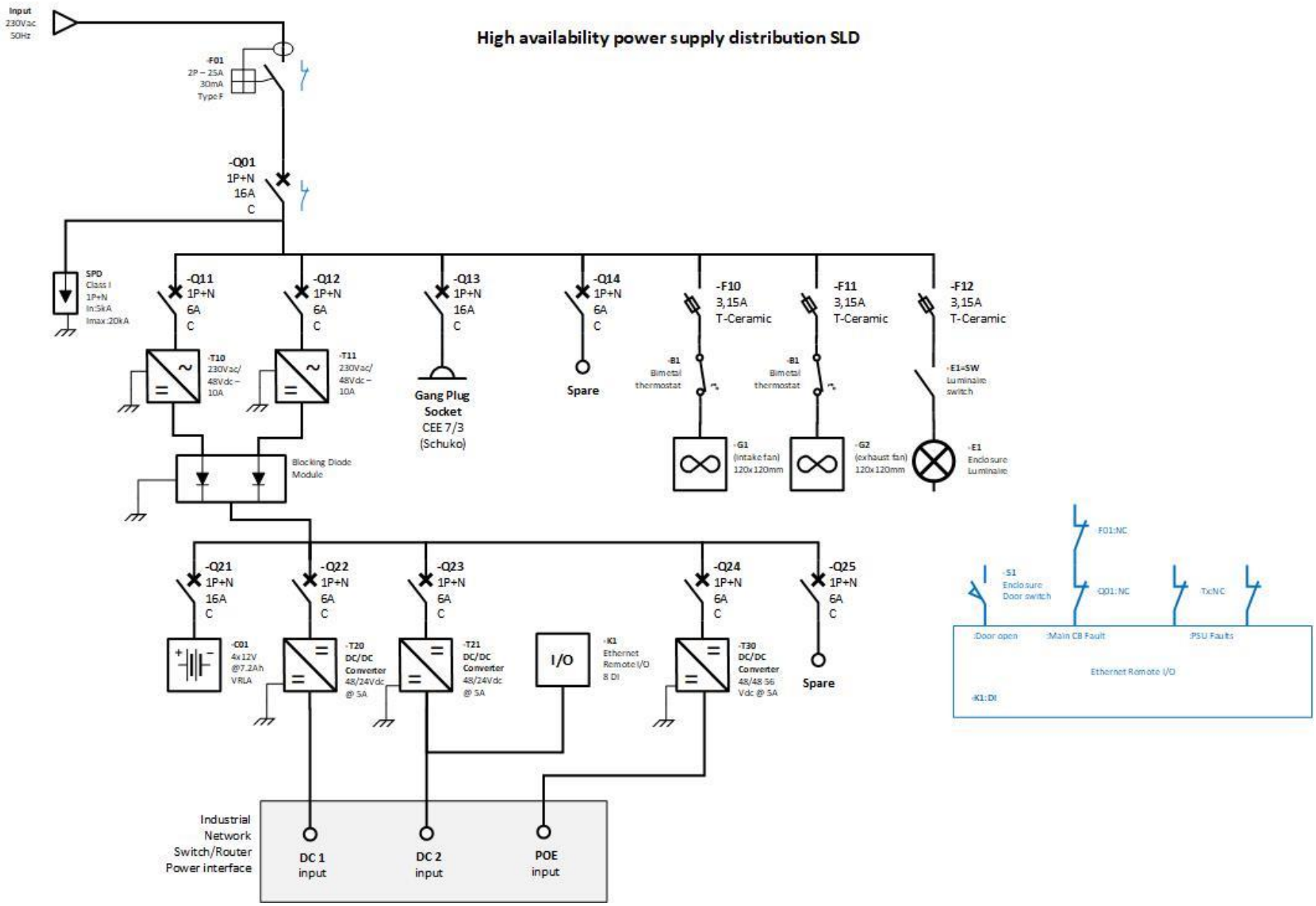
Battery array Pack (4x12V 8.Ah) 1pack/pillar

Line #	Requirement	Mandatory	Response	Reference
1	Nominal Voltage of each battery 12V (6 cells per unit)	YES		
2	Nominal Capacity of each battery 8.0Ah @20hr-rate to 1.75V per cell @25℃	YES		
3	Operating Temperature Range Discharge : -15℃ ~ 50℃ Charge: -15℃ ~ 40℃	YES		
4	Float Charging Voltage of each battery 13.5 ~ 13.8 VDC/Unit at 25℃	YES		
5	Equalization Charging Voltage of each battery 14.4 ~ 15.0 VDC/Unit at 25℃	YES		
6	Internal Resistance of each battery Approx. 23.0mΩ	YES		
7	Short Circuit Current of each battery 276A	YES		
8	Maximum Charge Current 2.16A	YES		
9	Container Material ABS (UL 94-HB) & Flame Retardant (94-V0)	YES		
10	Terminal types of each battery F1/F2 terminal - Faston Tab 187/250	YES		
11	Constant Power Discharge must be 15min >150W @ 1,85V	YES		
12	A separate battery pack must be including the Battery array (4 batteries). This battery pack must be properly to fixing inside of pillar.	YES		
13	Warranty 1 year			

Surge protection (Terminal rail fixing), 1 A, According to IEC61643-21
Quantity (one for each UTP input Cable)

Line #	Requirement	Mandatory	Response	Reference
1	Din Rail	YES		
2	Suitable for Cat. 6 (up to 250 MHz Class E)	YES		
3	Suitable for PoE+ (according to IEEE 802.3at)	YES		
4	Protection of all wire pairs	YES		
5	Connection via RJ45 sockets	YES		
6	Metal housing	YES		
7	Humidity 0-95 % (no condensation)	YES		
8	Operating temperature, min. -40 °C /max. 80 °C	YES		
9	Voltage Breakdown (VDC) L-G 72 V - 120 V	YES		
10	Voltage Breakdown (VDC) L-L 53 V - 73 V	YES		
11	Rated Voltage 48 V	YES		
12	Voltage type AC/DC	YES		
13	Max. continuous voltage, Uc (AC) 48 V	YES		
14	Discharge current, Iimp (10/350 µs) 1 kA	YES		
15	Discharge current In (8/20µs) wire-PE 5 kA	YES		
16	Discharge current Imax (8/20µs) wire-PE 10 kA	YES		
17	Protection level UP (typ.) ≤ 550 V	YES		

18	Standards According to IEC61643-21	YES
19	Insertion loss ≤ 1 dB @ 250 MHz	YES
20	Signal transmission properties (-3 dB) 250 kHz Suitable for RJ45 plug	YES
21	Rated current IN 1 A	YES
22	Surge current-carrying capacity C2 10 kA	YES
23	Surge current-carrying capacity D1 1 kA 10/350 µs	YES
24	Volume resistance < 0.1 Ω Wire-PE capacitance @ 1 MHz, 1 Vrms 20 pF	YES
25	Approvals EC Declaration of Conformity approval, ROHS	YES


High availability power supply distribution SLD
Input
230Vac
50Hz
-F01
2P – 25A
30mA
Type F
-Q01
1P+N
16A
C
SPD
Class I
1P+N
In:5kA
Imax:20kA
-Q11
1P+N
6A
C
-Q12
1P+N
6A
C
-Q13
1P+N
16A
C
-Q14
1P+N
6A
C
-F10
3,15A
T-Ceramic
-F11
3,15A
T-Ceramic
-F12
3,15A
T-Ceramic
-T10
230Vac/
48Vdc –
10A
-T11
230Vac/
48Vdc –
10A
Gang Plug
Socket
CEE 7/3
(Schuko)
Spare
-B1
Bimetal
thermostat
-B1
Bimetal
thermostat
-E1=SW
Luminaire
switch
Blocking Diode
Module
-G1
(intake fan)
120x120mm
-G2
(exhaust fan)
120x120mm
-E1
Enclosure
Luminaire
-Q21
1P+N
16A
C
-Q22
1P+N
6A
C
-Q23
1P+N
6A
C
-Q24
1P+N
6A
C
-Q25
1P+N
6A
C
-C01
4x12V
@7.2Ah
VRLA
-T20
DC/DC
Converter
48/24Vdc
@ 5A
-T21
DC/DC
Converter
48/24Vdc
@ 5A
I/O
-K1
Ethernet
Remote I/O
8 DI
-T30
DC/DC
Converter
48/48 56
Vdc @ 5A
Spare
Industrial
Network
Switch/Router
Power interface
DC 1
input
DC 2
input
POE
input
-F01:NC
-S1
Enclosure
Door switch
-Q01:NC
Tx:NC
:Door open
:Main CB Fault
:PSU Faults
Ethernet Remote I/O
-K1:DI

Access Points Poles

Line #	Requirement	Mandatory	Response	Reference
1.	Characteristics			
1.1	The new poles of the Access Points must be made of suitable material, hot-dip galvanized	YES		
1.2	The poles must consist of welded fixed tubular pieces of equivalent length. Metal Thickness must be at least 5mm. Poles must be screwed to four brackets anchored to the ground and spaced together from the ground surface, at least 5cm	YES		
1.3	New and existing poles should be provided with suitable ground, which must be mounted on the ground in accordance with the relevant requirements of Greek regulations.	YES		
1.4	The new metallic poles must be hollow internally and must have an opening at a specific point in the compartment at the bottom of the pole to cross and slide the cables. At the top of the pole there must be suitable holes for the cables to pass through to the corresponding equipment ensuring the tightness of the pole.	YES		

NOTE 1: There is a possibility to build infrastructure in the existing pylons in the port zone for the installation of the Access points

NOTE 2: All the bolds for the connection of the cabinet with the support base must be at least stainless steel material

Infrastructure – Routes Specifications

Line #	Requirement	Mandatory	Response	Reference
1	Characteristics			
1.1	The excavations for the points that must be considered necessary must be a natural continuation of the existing infrastructure and routes of PPA SA. They must be carried out by the contractor on his own and after thorough on the site survey and after obtaining all necessary relevant permits from all Public Agencies involved, if necessary. The Contractor is obliged to prepare the file with the studies and supporting documents for permits from public authorities that may need to be issued in the name of PPA SA and assist PPA SA in their prompt issuance. Upon the completion of the excavations, the restoration of the Port Facility site to its original condition is the responsibility of the prospective Contractor.	YES		
1.2	The cable protection pipes must be made of thermoplastic HDPE 450Nt, and according to EN 61386-24, NF P98-332/EN 12613 & EN 50520 (type GEOSUB/FLEX)	YES		

1.3	The cross-section of the piping shall be at least OD 75mm. The pipes must be about 10cm apart from each other and from the edges of the trench.	YES
1.4	Filling of the ditch and boxing of the pipe up to 10 cm from its upper end must be done with quarry sands and squeezing on both sides of the pipe. The rest of the ditch must be covered with crushed quarry material which must be compacted.	YES
1.5	Routing operations include the installation of a marking grid along the length of the trench.	YES

NOTE: Repair and restoration of any damage to existing infrastructure during the works is the responsibility of the contractor.

Cabling

Line #	Requirement	Mandatory	Response	Reference
1	The new cables required for the installation and operation are divided into power supplies and signals / controls. For their procurement it should be taken into account of the specifics of the Port Facility, the environmental conditions, the underground routes, the durability, the threat of rodents, etc. From each point of access for their installation and transit (wells, openings , etc.), upon completion, the necessary measures must be taken to ensure their closed and waterproof installation. Additionally, all cable types including optical and electrical must be certified and labeled on the outer insulation material according the EU CPR Cable standards.	YES		
1.1	Access points cables: • Indoor: CAT6A (Augmented Category 6 Cable) with solid conductor diameter of AWG 22, EU CPR Certified Indoor • Outdoor: CAT6A (Augmented Category 6 Cable) with solid conductor diameter of AWG 22, EU CPR Certified Outdoor	YES		
1.2	Cabinet Power Cables: NYY, cross section, according to distance and voltage drop. The technical offer must be including a study for the Voltage drop for each route.	YES		
1.3	Fiber optic cables, enclosed in at least the following technical specifications: • Type: At least 12 pairs (24 fibers) shielded one-way optical fiber, with antirust protection. • Wavelength: 1310 nm, • Operating field diameter: 9.2 ± 0.6 μm, • Φ Bark diameter: 245 ± 10 m • Insulation skin concentricity error: 12.5 μm. • Cut-out wavelength: 1150/1330 nm, • Loss at 1310/1550 nm: ⩽ 0.38 db / km / ⩽ 0.25 dB / km,	YES		

	• Color dispersion: ⩽ 3.5 ps / nm.km (between 1285 and 1330 nm), • Color dispersion at 1550 nm: ⩽ 18 ps / nm.km, • Loss variation: 0.1 dB / km (between -40 ° C and + 70 ° C), • refractive index at 1310/1550 nm: 1,467, • Halogen-free cable. • Resistance / Crushing: 2000 N, • Twist: 5 rev / m, • Maximum traction load: 700N, • Minimum static bending: 69mm, • Minimum dynamic bending: 104mm, • Operation at minimum temperature range: -20 ° C to + 50 ° C, • Water resistance: <3m @ 18hr.	
1.4	The Engineering and environmental requirements must be in accordance with EN / IEC 60793-2, as well as IEC 60332-1 or later	YES
1.5	All cables must be routed both within the PE underground tubes but also within the lighting and camera tissues (existing or new).	YES

NOTE: All replies in the above Technical Specifications table must be detailed and referenced to the relevant proposed product documentation.

Captive Portal

Line #	Requirement	Mandatory	Response	Reference
1	The splash page (also known as the 'captive portal' / splash page) will provide personalized access to users with the addition of username / password credentials. In addition, the splash page will display a corporate logo with color features. The homepage must also be able to show the terms of use of the service which may include an acceptable use agreement or a privacy statement. Other features the captive portal must support are: page editor for personal style configuration in the input process, both online and offline. promotion his brand (expanding branding) or placing advertising content (banners, logos, text messages), with dynamic tools of targeted marketing tools, social media engagement. **User access authentication methods** Authentication and user access (self-registration) must be	YES		

supported through the following methods:
• Social media login
The visitor can connect to the wireless network using a variety of ways, even with his personal social media account (Facebook, Twitter, LinkedIn, Google+, Instagram, etc.).
• Insert a mobile number from the user
• Email registration
The required access information fields must be easily adjusted in the input settings. As an additional safety valve, it is desirable to authenticate by sending a confirmation SMS.

Relative cost should be included in the financial proposal as **optional.**

Site Surveys tool

Line #	Requirement	Mandatory	Response	Reference
1	A tool (H/W and S/W) for designing, analyzing, optimizing and troubleshooting Wi-Fi Network with the following characteristics. More analytically, the tool must do the followings: • 3D WiFi Network Planning • Automatic AP Placement • Site Surveys: Passive, Active, Throughput, Spectrum • Heatmaps • WiFi Troobleshooting • Fully Customizable Reports • Supports 802.11ax (Wi-Fi 6) Relative cost should be included in the financial proposal as **optional.**	YES		

NOTE: All replies in the above Technical Specifications Tables must be detailed and referenced to the relevant proposed product documentation.

Chapter E: Financial Specifications

Participants are requested to submit a financial proposal for providing the total Solution and services that are the subject-matter of this Call as described in the tender document.

Financial Table F.1-1 Software Hardware Services

A/A	DESCRIPTION	ITEM NAME	QUANTITY	PRICE [€] Excluding VAT		VAT [€]	TOTAL PRICE INCLUDING VAT [€]	* MAINTENANCE COST [€] EXCLUDING VAT			
				UNIT PRICE	TOTAL PRICE			Year 4	Year 5	Year 6	
1	Software										
2	Licences										
3	Hardware										
4	Technical Support										
5	Physical Installation Services										
6	Services**										
				TOTAL	**B**			**B1**	**B2**	**B3**	

* Maintenance Cost refers to the years after the end of the minimum 3 Years requested Warranty period.

** Services must include all other implementation Services (Design – Configuration – Migration – Commissioning-Warranty - Consulting).

Financial Table F.1-2 Training

A/A	DESCRIPTION	Man Month	PRICE [€] Excluding VAT		VAT [€]	TOTAL PRICE INCLUDING VAT [€]
			UNIT PRICE	TOTAL PRICE		
				TOTAL		

Financial Table F.1-3 Other Costs

A/A	DESCRIPTION	Man Month	PRICE [€] Excluding VAT		VAT [€]	TOTAL PRICE INCLUDING VAT [€]
			UNIT PRICE	TOTAL PRICE		
				TOTAL		

Financial Table F.1-4 Total Costs

A/A	DESCRIPTION	TOTAL PRICE [€] Excluding VAT	VAT [€]	TOTAL PRICE INCLUDING VAT [€]
1	Software, hardware and services (Table F.1.1)			
2	Training (Table F.1.2)			
3	Other Costs (Table F.1.3)			
4	Maintenance cost for 3 years (Table F.1.1)			
	GRAND TOTAL			

Financial Table F.1-5 Optional Costs

A/A	DESCRIPTION	PRICE [€] Excluding VAT		VAT [€]	TOTAL PRICE INCLUDING VAT [€]
		UNIT PRICE	TOTAL PRICE		

Financial Table F.1-6 Price list

Financial table F 1.6 Reference Price List which includes all possible hardware and services which but not limited to hardware of switch, camera, UPS, mount, pillar, pole, UPS and the other auxiliary materials and service of project management, equipment installation, civil constructions, survey, design, etc.

A/A	Description	Unit measure	Unit Price
1.	Switch Type A		
2.	Switch Type B		
3.	Switch Type C		
4.	…		
5.	AP Type A		
6.	AP Type B		
7.	AP Type C		
8.	…		
9.	Pilar Type A		
10.	Pilar Type B		
11.	Pilar Type C		
12.	…		
13.	Pole Type A		
14.	Pole Type B		
15.	Pole Type C		
16.	…		
17.	UPS Type A		
18.	UPS Type B		
19.	UPS Type C		
20.	…		
21.	Project management service A		
22.	Project management service B		
23.	Project management service C		
24.	…		
25.	Installation service A		
26.	Installation service B		
27.	Installation service C		
28.	…		
29.	Construction service A		
30.	Construction service B		
31.	Construction service C		

32.	…		

*** Financial table F 1.6 will be used to be calculated any possible equipment and workload and cost deviation during the all project's phases

Candidates should provide the following:

a. Price per man day per specialist level (excl. travel and accommodation expenses) for any additional services may be required in 3 years of warranty period and 3 years of maintenance period.

b. All proposed solutions must include all costs that would be incurred in order to create a functional and managed enterprise environment. Such cost considerations must include: licensing, implementation of a management platform, patch cords, possible cabling for connecting proposed devices to a network switch, etc. Any associated costs not included in the financial proposal such as wireless client upgrades/replacements, device installation costs, lifting equipment etc., must be clearly specified and explained in detail in the candidate's Financial response.

c. We expect that all the equipment related to the "Wireless Solution" will be covered by insurance from the Contractor until the delivery of the entire solution to the client

d. Upon signing the Contract and prior to the commencement of the rendering of the Services, the Contractor shall deliver to PPA an unconditional letter of guarantee payable upon PPA's first demand (the "**Performance Bond**"), as annexed in Appendix E of the present document. The Performance Bond will be issued by a bank lawfully operating in Greece in favor of PPA for an amount equal to 10% of the total Wireless Solution cost. The open end Performance Bond will be returned to the contractor after the lapse of six (6) months from the completion of the wireless network solution project.

Financial Terms and conditions

- All prices should be in Euro, excluding VAT
- Prices should include the entire delivery to PPA premises and deployment as per project specifications
- Suggested Payment Terms:
  - ✓ 30% payment in advanced after signing
  - ✓ 40% after equipment received

- ✓ 30% upon final acceptance

- Final Acceptance Certificate (FAC) will be issued by PPA S.A. after 30 consecutive days of productive operation without any defect and/or issues.
- The financial proposal should be quoted on a "Fixed Price" base for all solution categories
- Delivery Terms: DDP for all project's equipment, hardware and materials.
- All prices quoted should be inclusive of any applicable withholding tax.
- It is at PPA's sole discretion to choose to purchase only parts of the total offered solution and the Contractor is obliged to accept without altering any of the individual item prices.

Chapter F. Terms and Conditions

1.1. Legal framework:

The tender procedure shall be conducted in accordance with:

i. Law 4404/2016 (Government' Gazette 126/A/8.7.2016) ratifying the Concession Agreement entered into between the Hellenic Republic and PPA, regarding the use and exploitation of certain areas and assets within the Port of Piraeus of 24 June 2016 (Art. 1), together with its annexes. In accordance with the terms and provisions of the above agreement, the Hellenic Republic grants PPA the exclusive right to possess, use, manage, maintain, improve and exploit the assets conceded therein. and

ii. The EU General Data Protection Regulation in force (EU 2016/679).

iii. Law 4577/2018 on the enforcement of the EU Directive 2016/1148 concerning the security of network and information systems across the Union.

iv. All relevant applicable Greek legislation.

v. PPA S.A.'s Regulation for the award of Works, Services and Procurement in force.

vi. The provisions, terms and conditions outlined in the Tender Document.

vii. In addition to the above, the Tender Document with its attachements and other information on the basis of which the tender procedure is conducted for the selection of the Contractor for the project consist of the documents cited below. In case of a doubt or discrepancy among the content of their terms, the rank of validity of those documents is as stated below:

   a. The Contract to be signed.
   b. This Tender Invitation.
   c. The Financial Proposal.
   d. The Technical Proposal.

1.2. Language of the procedure

1.2.1 The language of the Tender procedure will be English and Greek and all information and documentation will be drafted in the English or Greek language and will be accompanied by a legal translation into one of the above languages.

1.2.2 Moreover, all written and verbal communication between the Candidates, Tender Evaluation Team and PPA shall also be in English and/or Greek.

1.2.3 In case of doubt between the two languages' interpretation, the prevailing language will be the English Language.

1.3. Taxes, customs duties, etc. - Payment of the Contractor

1.3.1 All overheads, Contractor benefit, etc. and taxes, duties, etc. must be included in the Financial proposal. VAT is payable by PPA SA.

1.4. Presumption resulting from the participation in the procedure

1.4.1 Submission of an offer in the tender procedure will constitute a presumption that each Candidate has been apprised of the Tender Invitation / Call and information and is fully aware of the Project's implementation conditions. In particular, candidates are obliged to fully apprise themselves of all Project implementation conditions including all those specified in this Article. Participation in this Tender by submitting an offer to this tender procedure it is well understood and accepted that the candidate:

i. Has checked all general and local conditions for the wi fi project.

ii. Has also examined, understood and accepted the technical requirements, which will form the basis of their offer.

1.4.2 Any failure by the Candidate to acquire knowledge about all the above issues and requirements using all information possible, is at its own risk and exclusive responsibility and shall not exonerate its liability and obligation to comply in full with its contractual obligations.

1.4.3 In light of the above, Candidates must fully and unreservedly guarantee the accuracy of the wireless network solution project financial proposal, while within the contract to be signed, **the Contractor must expressly waive its right to adjust its fee for any reason.** Moreover, by submitting their offer, Candidates unreservedly accept that if chosen as Contractor they will unreservedly undertake to carry out all work and in general to perform the project in full compliance with all terms, etc. and the project implementation schedule specified herein.

1.4.4 Candidates are not entitled to any remuneration for expenses incurred relating to the compilation and submission of their offer, etc.

1.5. Submission method

Offers' submission will be acceptable either/or:

- Electronically via e-mail at procurement@olp.gr, as follows:

The offers to be submitted electronically (prequalification documents folders, technical folders and financial folders) via e-mail attachments or via e-mail download links:

a. The Entire offer (in a electronic folder with subject title: «Offer for the Procurement of Wireless Network Solution for PPA S.A. needs»)
b. The Prequalification Documents (separately password protected folder,within the offer)
c. The Technical folder (separately password protected folder,within the offer)
d. The Financial Offer (separately password protected folder,within the offer)

Important Note: The passwords of the electronic folders (b.,c.,d.) will be sent separately, the way and the specific email address to be sent, will be announced by PPA S.A. to you, via email or telephone call, at a later date(s).

- Hardcopy (sealed folder) via post at Secretariat (Office 212) – Procurement Department – Piraeus Port Authority S.A. - Akti Miaouli 10 Piraeus 18538, with the indication on the folder: «Offer for the Procurement of Wireless Network Solution for PPA S.A. needs» and each Candidate's contact details.

In the hardcopy (sealed folder) case, all documents and materials should be submitted in electronic format in USB media included in one (1) sealed envelope/package.

The sealed envelope/package should contain:

I. A separate sealed envelope/package including the **Technical proposal** with at least the following media: USB copies.
   The Sub-folder of Technical proposal must include, on pain of rejection of the Offer, the following documents (original or duly certified copies, where applicable), as evidence of compliance with the requirements of this Call. In particular, the following must be included:

a) An introduction-executive summary that contains the summary of the Offer of the Candidate, which should include the following:

i. summary description of the provided software, hardware and services;

ii. a brief description of the Technical and Operational specifications;

iii. a brief description of the methodology to be followed during Project implementation;

iv. summary of the Schedule and Phases of the IT Project (please, refer to the services offered and deliverables per project phase in Appendix F);

v. a brief description of the IT Project Team structure/staff.

b) Detailed CVs of the Project Team

II. A separate sealed envelope/package including the **Financial proposal in hardcopy format, with the format as per Financial Table F.1-1 and F.1-2 (Chapter E)** with at least the following media: two (2) CD or USB copies.

III. A separate sealed envelope/package including the **Prequalification Documents** in hardcopy format and in electronic media as mentioned **in Chapter B** below as following: USB copy.

The files stored in the CD or USB media or the files sent via e-mail, must be either in Microsoft "Word doc files" or Adobe pdf" format files for both the Technical and Financial Proposal.

All envelopes/packages,USBs or electronic files should be clearly marked with the indication "TECHNICAL PROPOSAL" or "FINANCIAL PROPOSAL" or "Prequalification Documents", as appropriate (note: lack of proper identification shall invalidate the Proposal).

The sealed Technical and Financial envelops/packages should be enclosed inside an outer envelope (which must also be sealed) marked as follows:

- With the words: **Procurement of "Wireless Network Solution"**
- With the words: Proposal by … (name and address of the respective Candidate/ Participant).
- With the address of PPA:

Piraeus Port Authority S.A.
10 Akti Miaouli Str.
Piraeus
18538, Greece

Attn.: Procurement Department (Office 212)

Any financial information in the Technical Proposal shall invalidate the offer.

All Interested parties are required to submit their offers until **01 September**, **16:00 (Greek Time) 2020** at procurement@olp.gr or at PPA premises 10 Akti Miaouli str. 18538, Piraeus, Greece to the procurement department, secretariat office number 212/ first floor.

Interested parties can submit any questions / clarifications concerning the call for expressions of interest to one of the following email addresses: wifi_tender@olp.gr and procurement@olp.gr requested in time they will be provided by PPA as soon as possible and no later than 3 working days before the last date for submitting offers.

If for any reason the aforementioned procedure is unable to go ahead on that date or if the procedure goes ahead but no offers are submitted, the tender procedure will be conducted on a new date to be specified by decision of the PPA, which will be posted on the Company's website.

1.6. Validity of offers

The Proposals, including the Financial Proposals of the Participants, shall be valid for a period of at least four (4) months from the submission deadline date.

Participants are advised that they may be asked to extend the validity of their proposals for additional months.

A Proposal shall only be deemed to be accepted when a notification of Acceptance is communicated to the Participant by email or facsimile transmission (by fax). The date of transmittal of the email or fax notifying acceptance shall be deemed to be the date of acceptance of the Proposal. Acceptance of a Proposal submitted by the Participant shall create an irrevocable obligation on the Participant, immediately after the acceptance date, to enter into a Contract.

In case less than three candidates' offers fulfill tender criteria in order for their financial proposals to be unsealed, then, PPA reserves the right to cancel the procedure by declaring it as non- successful.

It is at PPA S.A.'s sole discretion to cancel the whole tender procedure at any stage. No compensation will be paid to the bidders under this circumstance.

1.7. True and Correct statements

Each Participant understands that the information contained in its Proposal will be relied upon by the Tender Evaluation Team in making their decision with respect to the award of the Contract and such information is expressly warranted by the Participant to be true and correct. Furthermore, each Participant will furnish such supporting and confirming information, prior to the award of the tender, as may be reasonably requested by the client.

Any approvals and permissions (by the Greek or any other Authorities) that are deemed necessary to fulfill the provision of Supply, Services and Contract should be described by the Participants in the Proposal, along with the activities required to achieve them (including duration and costs – Costs should be included only in the Financial proposal).

Notwithstanding the above, unless required by relevant rule and regulation (the Participants are obliged to mention explicitly such rule and/or regulation) that this is the obligation of the client to fulfill them, the Participant shall be responsible at their own cost to fulfill those approvals and permissions.

All proposed solutions must have any possible required suitable license or certificate to guarantee the usage of the hardware and software products in the European Union.

2. Assesment of Proposals

2.1. Presentation and interviews

Following submission of their Proposals, Participants may be required to present their Technical Proposals to the Evaluation Committee. The Candidates' Offers (and more specifically their Technical and Financial Proposals) that will be evaluated are only those that fulfil the Prequalification (ON/OFF) Criteria, provided in Chapter B.

A Proof of Concept of a scaled-down version of the offered solution may be required prior to the selection of the Contractor.

All Participants' costs associated with the Proof of Concept, the Presentation and any interviews will be solely at the Participant's expense.

2.2. Evaluation Process

A Tender Evaluation Team will be formed to review and evaluate the Proposals, as well as any supplementary information it may obtain in the course of the evaluation process through clarifications, presentations and interviews with Participants.

The assessment will be performed according to the compliance with the mandatory techncical requirements of the technical specifications mentioned within Chapter C and D where the main fields are:

The criteria assessment will be performed initially according to the compliance with the mandatory requirements (ON/OFF Criteria) of the technical specifications, as mentioned within Chapter C and D.

The technical criteria assessment will be performed at the second stage using scoring method. The same will also apply to the economic criteria.

The provision of any technical charachteristics, additional to the minimun, in the requested equipment that will be considered valuable, will be scored higher.

Award criterion shall be the most advantageous offer by combining financial scoring F = Sf and technical scoring St), in a 40 / 60 percentage ratio.

The combined technical and financial score, S, is calculated as follows:
S = St x 60% + Sf x 40 %

The Candidate that will achieve the highest combined Technical & Financial weighted score will be selected.

Technical proposals that do not meet the minimum mandatory requirements as mentioned above are unacceptable and will not be further considered for Financial evaluation.

The agreement to be entered into and between the Contracting Authority and the selected Participant (the "Agreement" or the "Contract") shall be governed by, construed and enforced in accordance with the laws of the Hellenic Republic. The parties will make every effort to settle amicably any dispute or difference, which may arise concerning the interpretation or the execution of this Agreement. Any dispute or difference, which may arise concerning the interpretation or the execution of the Agreement and any claims arising there under, shall be subject to the exclusive jurisdiction of the courts of Piraeus, Greece.

Subcontracting

If chosen as Contractor, Candidate may outsource a part of the project corresponding to its work, up to worth of forty percent (40%) of the overall value of the project, to one or more Enterprises via subcontracting agreements.

In order to validly participate in the tender procedure, Candidates who wish to collaborate with a subcontractor(s) must present and indicate the subcontractor they wish to outsource work to under a subcontracting agreement, by submitting a Solemn Declaration from the subcontractor within the offer, where it thoroughly accepts the signing of the subcontracting agreement, if and when the Candidate is chosen as the project Contractor.

The subcontracting agreement must be submitted prior to the signing of the Contract. Any amendments, changes, replacements to or deadlines relating to the appointment of a subcontractor(s) may only be done under PPA's prior written approval. Moreover, the Contractor shall be obliged to promptly at any stage withdraw from the project any subcontractor who are considered by PPA not to have met the financial and technical standards and necessary experience to carry out the part of the project subcontracted to them by the Contractor.

Contractor's obligations – General provisions

Staff insurance: The Contractor must have all its staff insured with the IKA Fund or other social security provider, where its staff do not fall within the IKA Fund's remit.

Insurance coverage for the project and staff: The Contractor shall be obliged to insure the project and its staff with an insurance company recognized by the Greek State against any risk of accidents towards PPA and third parties and to ensure that it remains insured at all times without interruption, and to do the same for all manner of materials from delivery to integration into the project, worksite facilities, and any existing adjacent property of the Project Owner and

PPA S.A., which is directly related to the project being built, and described in the contractual documents.

The Contractor is responsible for complying with the laws and applicable policing provisions and is obliged to promptly notify the Competent Construction Department and Project Manager of the decrees or orders which are sent or notified to it by various authorities while the project is being implemented, relating to inspection, safety, noise pollution, maritime environment protection measures, and so on.

The Contractor shall be obliged:

(a) to install signs and notices at worksite locations and sites where work is being carried out, depending on the nature of the work done.
(b) to keep those signs and notices in working order until the project is completed.
(c) to install flash lights at traffic hazard spots and where needed, to accept staff from the supervisory department to regulate the flow of traffic.

The Contractor shall be obliged to safeguard at own expense, machinery, tools or materials delivered by the Project Owner for use or integration into the project, and any damage, wear and tear or loss to them shall be imputed to the Contractor.

The Contractor shall be obliged to strictly, and without deviation, comply with the project implementation schedule which is a material term of the Contract and is of capital importance for PPA.

The Contractor is required to have all necessary licenses and approvals prior to commencing any work, as well as take all appropriate safety, security and health measures for the staff in order to comply with all applicable labor law provisions and the safety provisions in force at the workplace.

The Contractor is required to take all necessary and appropriate measures to protect the environment of PPA Port Area, as well as for the appropriate environmental disposal and / or alternative management of the waste resulting from the execution of its work.

In relation to the assembly and procurement of the contractual object, the Contractor is obliged to comply with all EU and Greek legislation, Rules of Art and Science and security measures for the performance of his obligations arising hereunder.

The Contractor is considered exclusively liable for any civil, criminal and administrative damages towards PPA and any third party, including PPA staff, and for any claim arising out of acts of willful misconduct or negligence regarding the transportation, assembly and delivery of the object of the contract.

The Contractor is responsible for the insurance coverage of his own liability and his employees or whoever is acting on his behalf and for the insurance coverage of the equipment with which he provides his services. The insurance policy should also include a "Third Party Liability" within or as a result of the supply, transport and assembly of the wi fi network.

As a third party Greek State should also be designated as an insured party in parallel with PPA SA, as being in accordance with Article 17.4 (a) of the Concession Agreement between the Greek State and PPA SA, ratified by Law 4404/2016 (Government Gazette A 126 / 8-7-2016), where referred: "….the Hellenic Republic (including officials and staff of the Hellenic Republic) is named as an additional insured party under such policies covering third party claims, to the extent such claims relate to the Concession Assets, to the fullest extent of the Hellenic Republic's insurable interests;…". The Contractor should be insured with one or more insurance companies that operate legally within the European Union.

The Contractor, in addition to other sanctions or penalties provided within the contract and the call of tender, is liable for fully compensating PPA for any direct or indirect damages that PPA may incur as a result of his actions. The above obligation also includes full compensation due to the exercise by PPA SA of its own right of withdrawal under this contract, in the event of defects of the delivered wireless network solution or lack of agreed technical requirements.

The Contractor is exclusively liable to strictly comply with Article 9 of the Law 4554/2018. In particular, either the contractor alone and/or jointly with its subcontractor, is obliged to comply with the provisions of labor and public insurance law, of legislation for health and safety of employees and workers, as well as the legislation for the prevention of professional risk, both of them being jointly and severally liable for the compensation of claims of employees and workers deriving from the above legal framework and the laws regarding the labor accidents.

In any case, the contractor shall be obliged to submit to PPA's competent department within the first 5 days the latest of every calendar month and as long as the contract will be valid (during whole duration of the contract) all statements of its employees' or workers' payments or

dismissal compensations, if any, as well as all public insurance payments for the employees or workers of the contractor or its subcontractor, of the previous month, in pain of being revoked of the Project. Moreover, within the same deadline, the contractor shall also submit a solemn declaration of its legal representative, with a certification of his signature originality, declaring that all salaries, insurance contributions or any other kind of payments to its own or its subcontractor's employees and workers regarding the previous month, have been duly paid".**GDPR statement**

The participants are required to fill in, print and sign the GDPR statement as attached in Appendix C and include the hardcopy printed or scanned document in the Prequalification Documentation envelope.

3. APPENDICES

Appendix A Wireless Clients List

Type	OS
Laptops	Windows, macOS, Linux
Tablets	Windows, Android, iOS
Mobile Phones	Windows, Android, iOS

Appendix B Initial design

Upon request will be provided to all interested parties the followings:

i. Network Topology maps
ii. Wifi Coverage Area list
iii. PPA Facilities needed WiFi coverage (The positions of the APs in the appendix are indicative)
iv. PPA facilities mapping and designs

Appendix C GDPR Statement

GDPR Statement

PPA SA Personal Data Protection Disclaimer

I confirm that any personal data that may be disclosed to PPA SA by the contractor to be selected pursuant to the terms of this Tender Invitation are correct and I agree to the process and use of the personal data by (Name of the Agency) in order to forward such data to Piraeus Port Authority S.A., in accordance with the International Ship and Port Facility Security Code (ISPS) for the purpose of granting permission of entrance to Piraeus Port Authority facility, for me to execute certain task mentioned in the respective electronic form filled out by the aforesaid agency.

I agree to the process and the use of the aforesaid personal data in order for them to be categorized and for statistical analysis purposes and I have been properly informed in accordance with the current legislation in force.

PPA S.A. collects processes and forwards the aforesaid personal data strictly for the purposes mentioned above and for which you have expressly consented. The processing being performed is absolutely necessary and performed by competent personnel of the Company. The Company utilizes for the purposes of processing other persons that are bound to proceed to processing specially asked according to the present agreement and the Law. The personal data may be sent to other Countries either within the European Union or not, for the purposes of processing that you have provided consent. The processors within the European Union are bound by GDPR 2016/679/EK (Regulation). The personal data are being kept by PPA SA for the period of 2 years except otherwise provided by the Law. You have the option if you wish to contact PPA SA at gdpr@olp.gr for any matter regarding your personal data according to the provisions of the Law in force.

The Subject

Signature

Name

Surname

Appendix D: Participation Bond

(TENDER BANK GUARANTEE)

Piraeus Port Authority S.A. (PPA S.A.)

10, Akti Miaouli

185 38, Piraeus Greece

Date:…….

Dear Sirs,

1. We have been advised that:

a)[Full Name], a [Type of Entity], lawfully established under the laws of [jurisdiction], with registered offices at [Full Address of Registered Office], registration number [number of corporations' or similar register], as lawfully represented (the "Candidate") intends to submit a binding offer (the "Offer"), in response to a document entitled "CALL OF TENDER FOR THE AWARD OF PROCUREMENT OF WIRELESS NETWORK SOLUTION FOR PPA SA NEEDS", issued by Piraeus Port Authority S.A. ("PPA" or "you") and dated …….. (the "Call"). Capitalised terms not defined herein shall be used as defined in the Call.

2. We have been advised that the obligations of Candidates regarding their participation in the tender process are several and accept to be bound by and to honor this letter of guarantee whether or not a call on this instrument results from the act or omission of any of the persons named at the beginning of paragraph 3 below.

3. In view of the foregoing and at the request and for the account of the Candidate, we [Full Name of Eligible Bank], acting through our [●] branch of [Full Address], hereby guarantee irrevocably and unreservedly to PPA S.A. for the full and proper observance by, and compliance of the Candidate with the terms and conditions applicable to their participation in the Process, as well as for any and all other financial and non-financial obligations of the Candidate relating to its participation in the Process, each pursuant to Call and the provisions of applicable law, up to a maximum aggregate amount of 10.000,00(€)

4. We shall commit the above amount and shall pay same to you in whole or in such part as you may specify in writing, without any objection or pretext, within two (2) Athens business days following receipt of your first and simple demand in writing or by authenticated SWIFT making reference to this letter of guarantee and stating that the Participant(s) failed to comply with the terms

5. We hereby expressly and irrevocably waive the benefit of division and discussion, our right to invoke any of the objections of the prime obligor, including personal and non-personal objections and, in particular, any objection provided for under Articles 852-855, 862-863, 866, 867 and 869 of the Greek Civil Code and waiving also any and all of our rights under the said Articles.

6. No approval, act or consent on the part of any of the Participants, the applicant(s) hereof or any third party shall be required for payment of any amounts hereunder. In addition, no objection or disagreement of any of the foregoing persons or their eventual recourse to

courts of any jurisdiction or arbitral tribunals seeking non forfeiture of this letter of guarantee shall be taken into consideration.

7. Subject to paragraph 8 below, this letter of guarantee is of indefinite duration and in any case shall remain in full force and effect until the earlier of: (a) the date on which all amounts available hereunder have been fully and actually drawn and paid to you; (b) upon receipt of your confirmation in writing or by authenticated SWIFT to the effect that you finally and irrevocably release us from any obligations hereunder.

8. This guarantee shall be governed and construed in accordance with Greek law. The courts of Athens, Greece shall have exclusive jurisdiction to resolve any disputes associated with this instrument.

Respectfully,

For [Eligible Bank]

[Authorized Signatures]

Appendix E: Performance Bond

(TENDER BANK GUARANTEE)

Piraeus Port Authority S.A. (PPA S.A.)
10, Akti Miaouli
185 38, Piraeus Greece
Date: ……

Dear Sirs,

1. Herewith we guarantee, irrevocably and unconditionally, waiving the right to divide and to require the debtor to pay first, in favor of Piraeus Port Authority S.A. Akti Miaouli 10, 18538 Piraeus, Greece and up to the amount of euro [……] for the good performance of the contract with […company name….], […company address..], concerning the tender procedure initiated on […date..], as subsequently amended accordingly of Piraeus Port Authority S.A. Akti Miaouli 10, 18538 Piraeus, Greece, with the subject: "PROCUREMENT OF WIRELESS NETWORK SOLUTION FOR PPA SA NEEDS" of total value euro [……], in accordance with the number [….] purchase order of yours dated [……].

2. The above amount of guarantee is held at your disposal which we are obliged to pay to you in whole or in part without any rejection or objection on our behalf and without considering the merits of your claim within three (3) days upon your written notice.

3. For the purpose of identification your written demand for payment and all other correspondences has to be presented to us in full by authenticated swift message to our swift address […..] through the intermediary of a bank. Within the validity period of this guarantee, confirming that your original demand for payment or any other correspondence has been sent to us by registered mail or special courier and that the signatures appearing thereon are authentic and legally binding upon your company. Your written demand or other correspondence by registered mail of special courier shall be accompanied by a cover letter issued by the intermediary bank confirming that the signatures appearing on the beneficiary's attached document are authentic and legally binding upon your company. Your written demand and all other correspondence shall be issued in English language. For the avoidance of doubt, your demand for payment or any other correspondence shall be deemed to have lodged on the date on which your demand for payment or any other correspondence sent via registered mail of special courier is in our possession at our counters in […..]

4. This open end guarantee will be returned to the contractor after the lapse of six (6) months from the completion of the wireless network solution project and will automatically become null and void, if your claim in the above form has not been received by us on or before the above mentioned duration regardless of such date being a banking day or not. Upon expiry, we shall be automatically released and discharged from all our liabilities under this guarantee, whether this guarantee is returned to us from cancellation or not.

5. This guarantee is personal to you and is neither assignable nor transferable.

6. If the guarantee is forfeited, the amount of the forfeiture is subject to the applicable stamp duty.

7. This guarantee is governed by Greek law and it is subject to the exclusive jurisdiction of the courts of Piraeus, Greece.

Respectfully,

For [Eligible Bank]

[Authorized Signatures]

Appendix F: Good Operation Gurantee letter

ΥΠΟΔΕΙΓΜΑ ΕΓΓΥΗΤΙΚΗΣ ΕΠΙΣΤΟΛΗΣ ΚΑΛΗΣ ΛΕΙΤΟΥΡΓΙΑΣ

Ονομασία Τράπεζας .....
Κατάστημα.....
Ημερομηνία έκδοσης .....

Προς ΟΛΠ Α.Ε., ΤΜΗΜΑ ΠΡΟΜΗΘΕΙΩΝ
ΤΑΧ. Δ/ΝΣΗ : Ακτή Μιαούλη 10
Τ.Κ. : 18538 ΠΕΙΡΑΙΑΣ

ΕΓΓΥΗΤΙΚΗ ΕΠΙΣΤΟΛΗ ΚΑΛΗΣ ΛΕΙΤΟΥΡΓΙΑΣ ΑΡ ..... ΕΥΡΩ .....

Έχουμε την τιμή να σας γνωρίσουμε ότι εγγυώμεθα δια της παρούσας επιστολής ρητά, ανέκκλητα και ανεπιφύλακτα, ευθυνόμενοι απέναντί σας εις ολόκληρο και ως αυτοφειλέτες και παραιτούμενοι του δικαιώματος της διαιρέσεως και διζήσεως, από το δικαίωμα προβολής εναντίον σας όλων των ενστάσεων του πρωτοφειλέτη, ακόμη και των μη προσωποπαγών, και οποιασδήποτε άλλης ενστάσεως και δικαιώματος των άρθρων 852-856 και 862-869 του Αστικού Κώδικα και οποιασδήποτε άλλης διάταξης νόμου, υπέρ
(σε περίπτωση μεμονωμένης εταιρείας)
της Εταιρείας ..... Δ/νση.. .....
ή (σε περίπτωση Ένωσης ή Κοινοπραξίας ή Σύμπραξης) των Εταιρειών :
1. ..... Δ/νση .....
2. ..... Δ/νση .....
μελών της Ένωσης ή Κοινοπραξίας ή Σύμπραξης, ατομικά για κάθε μία από αυτές και ως αλληλέγγυα και εις ολόκληρο υπόχρεων μεταξύ τους εκ της ιδιότητας τους ως μελών της Ένωσης ή Κοινοπραξίας ή Σύμπραξης και μέχρι του ποσού των ..... (υπολογιζόμενο χωρίς ΦΠΑ) επί του ποσού της σύμβασης ..... ευρώ, για την καλή λειτουργία της ‘’PROCUREMENT OF WIRELESS NETWORK SOLUTION FOR PPA SA NEEDS’’ που απορρέουν από την αριθ. ../../2019 σύμβαση.

Το ανωτέρω ποσό της εγγύησης τηρείται στη διάθεσή σας, και θα σας το καταβάλουμε σύμφωνα με τις οδηγίες σας ολικά ή μερικά χωρίς καμία από μέρους μας αντίρρηση ή ένσταση και χωρίς να ερευνηθεί το βάσιμο ή μη της απαίτησής σας, μέσα σε τρεις (3) ημέρες από απλή έγγραφη ειδοποίησή σας.

Η παρούσα ισχύει πλήρως μέχρις ότου μας επιστραφεί από εσάς ή μέχρις ότου λάβουμε έγγραφη δήλωσή σας ότι μπορούμε να θεωρήσουμε την Τράπεζά μας απαλλαγμένη από κάθε σχετική υποχρέωση.

Η παρούσα εγγυητική υπάγεται στο Ελληνικό Δίκαιο και στην αποκλειστική αρμοδιότητα των Δικαστηρίων του Πειραιά.

Βεβαιούμε υπεύθυνα ότι με την έκδοση της παρούσας εγγυητικής επιστολής δεν υφίσταται παράβαση των διατάξεων που αφορούν τον καθορισμό ανωτάτου ορίου για την έκδοση εγγυητικών επιστολών από την Τράπεζά μας.

(Εξουσιοδοτημένη υπογραφή)

Appendix G: Project Deliverables

Until the completion of the project, the contractor should deliver to PPA the following updated deliverables:

1) Proposed RF planning (within the Technical offer)
2) Site Survey study and Report (within the Technical offer)
3) Time Plan (before the Project starts)
4) Solution HLD and LLD (before the Installation starts)
5) Simulation Results (After the installation and before the final Project delivery)
6) Quality Acceptance Tests (After the installation and before the final Project delivery) that should contain the tests mentioned in Appendix G.
7) Delivery of drawings in the form AutoCAD and PDF of new routes (pipes, wiring etc.) and new infrastructure (pillars, etc.).

Appendix H: Quality Acceptance Tests

Physical Installation (Device Mounting)

1. Power on the controller and carry out basic configuration check including the policies
2. Test the physical mounting of each wireless device
3. Test each wireless device connectivity to the central Controller.

Server Configuration Test

1. check authorized wi-Fi set up for each subnet / VLAN / Location as the case may be
2. Check both Authorized user and Guest user policies
3. Test each wireless device if they have the right authorized and guest policy
4. Check Wi-Fi prevention policy for each subnet, VLAN and location
5. Check the configured alerts and alert delivery methods
6. Check the administrative users and their access rights
7. Check the configured reports (content, delivery frequency, recipient list)
8. Check the automatic backup and archival parameters

System Commissioning Test

1. Test for all wireless devices connectivity to the Controller
2. Test and verify authorized AP inventory
3. Test and verify authorized client inventory
4. Verify external AP list
5. Verify uncategorized / unauthorized client list
7. Test for authorized client connection to authorized AP and respective SSID as per the set Authentication policy
8. Test for Guest client connection to authorized AP and respective SSID as per the set authentication policy
9. Test if the devices are operational after shutting down the controller
10. Test if automatic Rogue AP prevention is working on all types of rogue APs

12. Test if unauthorized client association to authorized AP is automatically prevented
14. Test if Ad-hoc Networks are detected and automatically prevented
15. Test if Mac-Spoofing is detected
16. Test if automatic prevention of Honeypot (with Multipot) is functional
17. Test is Denial of Service (DoS) Attack is detected
18. Testing of deployment of policies, firmware update remotely through the controller

System Hand Over to the Operations Team

This step ensures that the WIPS has been properly installed and commissioned before it is handed over to the operations and maintenance team.

System Fine Tuning

1. Fine tune Wi-Fi Access policies
2. Fine tune security policies
4. Fine tune events, alerts, reports and other parameters