

## **PART III –WiFi REQUIREMENTS SPECIFICATION**

### **1. Introduction**

The Contractor is invited to

- Build up a WiFi network in **Ta Ku Ling Ling Ying Public School**; and
- Provide and maintain a WiFi service through subscription mode.

### **2. Background**

The School will **enhance / top up** the IT infrastructure so as to set up the necessary WiFi environment in the school premises (full WiFi coverage in ALL classrooms) for supporting e-learning in class. Regarding the enhancement of WiFi infrastructure, we would like to hire a contractor to design, build, operate and maintain the whole infrastructure; and to pay for the service by subscription thereafter, through a **subscription** model.

### **3. User Requirements**

This section specifies the user requirements of the School of the WiFi network. The Contractor shall be capable of supporting the requirements set out below.

#### **3.1 Standard Provision**

- **WiFi Internet Connectivity** – use IEEE 802.11 a/b/g/n/ac network or above in a standard classroom. The minimum number of classrooms to be covered shall be at least equal to the number of approved classes for the 2018/19 school year, that is **17** classrooms.
- **Number of Concurrent Connection** – commensurate with the maximum number of students, say **40**, in a class with at least **3.5Mbps** upload / download bandwidth per connection. The contractor shall provide a PoC to prove that the required bandwidth can be supported for 40 devices at the same time before tender award.
- **Number of classrooms using WiFi concurrently.**
- **Authentication Method** – use 802.1x standard based authentication and Hong Kong Education City single sign-on services.

- **Session Control** –Hong Kong Education City authentication service can support one device or multiple devices to connect based on user group (student, teachers).
- **Internet Content Filtering Service** – based on filtering profile commonly adopted by most schools and managed by vendors.
- **Existing Network Facilities** –rely on any existing network facilities and cabling of the School, nor interfere with the existing WiFi network of the School. The WiFi network shall be physically separated from the school network.
- **Broadband Network** – use separate broadband for the WiFi service. State otherwise if the existing broadband can be utilized for the service.
- **Broadband Service** – provide at least **200Mbps** Internet connection at school and allowing upgrade to 1Gbps
- **Managed Service** – operate the WiFi network using managed service model, provide end-to-end service with single point of contact including configuration, provisioning of service, proactive monitoring, maintenance and regular reporting.
- **Wi-Fi Controller Service** – operate the Wi-Fi network controller using managed service model, with local in school controller not acceptable, the controller service should be provided in a service center in Hong Kong provided by the service provider with redundancy.
- **Service Level Agreement** – ensure at least 99.7% availability of the WiFi service, support four-hour response time and four-hour service recovery with active monitoring, helpdesk support with support hours from Mon to Sat 8:00 am to 6:00 pm, and provide monthly monitoring reports for the School.
- **Contract End Arrangement** – All provisions of trunks, conduits, cables, LAN ports and power points shall be considered as fixture of the School and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.

### **3.2 Add-on Service (to be aligned with Part IV)**

- **WiFi coverage** – to include special rooms and open areas
- **Authentication Method** – user account system being used by school, etc.

- **Session Control** – Other requirements
- **WLAN system access control** – specific request on MAC address filtering.
- **MAC Address Monitoring** – The lists of filtering and filtered MAC addresses are to be monitored by **Ta Ku Ling Ling Ying Public School**.
- **Internet Content Filtering Service** – specific request on content filtering.
- **Integration of networks** – system integration with existing network with secure design.
- **Internet addresses subscription & configuration** – for Internet access to school internal resources.
- **Monitoring of WiFi network** – specific request on monitoring of WiFi network by School.
- **Redundancy** –Redundant WLAN controller shall be provided to increase the availability of the WiFi service.
- **Support hours** – extended support hours to 7 x 24.
- **Contract End Arrangement** – Other arrangements

### 3.3. Deliverables

3.3.1 The Contractor is required to provide the following deliverables for the WiFi network design:

- Master Activity Plan
- Network Configuration Report and Network Diagram
- Network Test Plan and Network Test Result Report
- Operation Manual for End User
- User Acceptance Test Plan
- Exit Plan

3.3.2 The Contractor is required to provide the monthly monitoring report with the following items:

- Network Health Report
- Network Usage Report
- Reporting of security incidents
- Reporting on trend and statistics of incident and their analysis
- Reporting of the failure rate for all equipment with detailed fault analysis

- Problem log and incident log for critical failure of the network
- Statistical report on the type and no. of calls
- Summary of the outstanding enquiry for the month-to-date

#### **4. Technical Specification (Standard Provision)**

##### **4.1 WiFi Network**

4.1.1 The Wireless LAN (WLAN) System of the WiFi network shall support simultaneous dual-operation-mode that is FAT Access Point (AP) and Thin Access Point are both supported together with WLAN Controller. WLAN Controller shall be capable of fully centralized provisioning, configuration and monitoring all APs functionalities; a backup of the WLAN Controller shall be available.

4.1.2 A pair of WLAN controllers shall be provided for redundancy purpose and the failover from the primary WLAN controller to secondary WLAN controller can be achieved without any manual interruption.

4.1.3 The thin client WLAN Access Point (AP) shall be a high performance wireless network access device, which shall be connected with the Power over Ethernet (PoE) Access Switches via Structured Cabling System. Appropriate type of connection cables between WLAN APs and the antenna shall be provided.

4.1.4 The WLAN APs shall be compatible with IEEE 802.11a/b/g/n/ac standard or above, support dual band of 2.4GHz and 5GHz. WLAN AP must at least support 3X3 MIMO technology.

4.1.5 The Contractor shall design the WLAN System to provide the coverage for the required wireless coverage place. The received signal strength measurement from the WiFi Service at the WiFi client device (such as tablet PC or notebook computer) is no worse than -68 dBm. The Contractor shall provide certificate or test report to illustrate that the WiFi client device for testing satisfies the power emission requirement.

4.1.6 The WLAN AP shall support DHCP, PoE, WPA2, IEEE 802.1x and certificate authentication.

4.1.7 The WLAN System shall support automatic channel selection, protocol filtering, multicast/broadcast storm filtering and load balancing.

4.1.8 The WLAN system shall allow single or multiple devices per user account to be authenticated using 802.1x and Hong Kong Education City single sign-on service.

4.1.9 Each WLAN AP shall be able to support at least concurrent **40** users connecting to the network simultaneously. In no circumstance shall the speed of data transmission symmetrically fall below the data rate requirement at any place or any corner or any highly congested area within the areas being covered. In case the transmission speed is below the said data rates, the Contractor shall be responsible for all remedial measures to rectify or configure fine-tuning of antenna or even increase the quantity of the WLAN AP at Contractor's own costs in order to meet the data rate requirement as mentioned in the Specification. A complete set of catalogues with brand and model shall be submitted and highlighted for reference. The catalogues shall show all the features and technical specifications of the products and systems.

4.1.10 The system shall provide bandwidth control per connection.

4.1.11 The WLAN shall allow different authentications by using Service Set Identifiers (SSIDs).

4.1.12 The SSIDs shall be able to be set hidden from searching by WiFi devices. The devices have to manually set SSID to make connection.

4.1.13 Individual APs shall be allowed to be assigned by more than one SSIDs.

4.1.14 Antennas of APs shall be capable of detecting user locations in real time for direction switching while devices in motion.

4.1.15 The DHCP server shall support at least 30 queries/sec.

4.1.16 The WLAN system shall suspend the session of the user once the session control is expired and the suspension time shall be configured by

the school.

4.1.17 The Contractor shall in provision of the service comply with non-interference requirements of and shall not cause interference prohibited under the Telecommunication Ordinance (Cap 106) or any other laws or regulation of Hong Kong.

4.1.18 The WLAN System shall provide termination of idle sessions and control of the duration features.

4.1.19 The WLAN System shall support client roaming across Access Points.

4.1.20 The WLAN system shall cover all areas specified under this tender.

4.1.21 The quotation shall include the cost to provide sufficient quantity and its cabling work required, including but not limited to supply and install the Fibre optics, Cat 6 cable, Conduit, cable patch panel, cable faceplate, Cable patch cord.

4.1.22 The Contractor shall provide complete set of WLAN Systems which consist of Wireless Access Point, Connection Cable, Authentication System, Wireless LAN Controller, PoE Switch, horizontal UTP Cat 6 cable/OM3 Fiber, patch cable UTP Cat 6 / OM3 Fiber Optics, any required license and all associated accessories.

4.1.23 All access points (AP) shall be certified by OFCA and copy of certificates issued by OFCA shall be attached to the proposals.

4.1.24 The Contractor shall ensure that there is no interference between WLAN Access Points due to limited non-overlapping channels assignment when the WLAN AP is installed. The Contractor shall be responsible at his own costs for providing solution to eliminate the interferences including but not limited to reassignment of the non-overlapping channels, adding extra APs with lower transmission power and/or replacement of the WLAN AP.

4.1.25 The WLAN System shall support Web GUI management.

4.1.26 FTP service shall not be allowed in the WiFi network (to avoid exchanging credential and files in plain text without any encryption).

4.1.27 The WLAN System shall support IPV6 addressing method.

4.1.28 The WLAN system deployed shall be non-Asian brand, but not limited to well-known brand in the market.

4.1.29 The contractor shall be authorized by the WLAN vendor to bid for this project to avoid any faked or low quality products are deployed. A vendor certificate shall be provided during the tender submission.

4.1.30 The contractor shall have at least 5 x certified engineers on the proposed WLAN brand for at least 6 months.

4.1.31 Those certified engineers shall be permanent staff of the contractors for at least 6 months in order to ensure the service quality on deployment and after-sales services can be maintained. The Contractor shall submit those supporting documents during tender submission.

4.1.32 The cabling deployed in the WiFi network shall be non-Asian brand, but not limited to well-known brand (e.g. Systimax, AMP, Krone, Brandrex, 3M & etc...).

4.1.33 The contractor shall be authorized by the cabling vendor to bid for this project to avoid any faked or low quality products are deployed. A vendor certificate shall be provided during the tender submission.

## **4.2 Core Switch**

4.2.1 The Core Switch would be responsible for connecting all PoE access switches in typical floors for WLAN AP while the Core switch shall be a non PoE switch (i.e. The Access Point shall not connect to the core switch directly).

4.2.2 The Core Switch shall be capable of providing the required bandwidth, QoS, and policy-based routing to carry all sorts of information including video, voice, data, image, etc.

4.2.3 The Core switch shall not be the same equipment as the Broadband Router or Firewall. A separate core switch must be provided.

4.2.4 Each Core Switch shall provide a Gigabit Ethernet connection to each PoE Access Switch in typical floors.

4.2.5 The Core Switch shall support Layer 2 and Layer 3 switching and capable of providing the wired speed performance.

4.2.6 The Core Switch shall support basic IP unicast routing protocols, Static route, Routing Information Protocol (RIPv1, RIPv2), inter VLAN routing.

4.2.7 The Core Switch shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, Spanning-Tree Protocol.

4.2.8 The Core Switch shall support WebGUI Management, Access Control Lists (ACLs), DHCP Interface and SNMP.

4.2.9 The Core Switch shall support VLANs including support for IEEE 802.1Q and IEEE 802.1p.

### **4.3 PoE Access Switch**

4.3.1 The Access Switches shall be deployed to provide high performance interconnectivity between the Core Switches and the WLAN APs on typical floor.

4.3.2 The Access Switch shall consist of 8/12/24/48 x 10/100/1000Base-T Ethernet ports, with minimum of 1 x 1000Base-T / 1000Base-SX SFP Gigabit Ethernet uplink ports connected with the Core Switch.

4.3.3 The Access Switch shall be used for connecting the WLAN APs. The Contractor shall determine the Maximum power loading of the devices to be connected with the PoE Access Switches. The Contractor shall provide additional PoE Access Switch(es) if the total power loading summed up

from the PoE devices exceeds the maximum power loading capacity of the PoE Access Switch.

4.3.4 The Access Switches shall support VLAN configuration.

4.3.5 The Access Switches shall be at wired speed.

4.3.6 The Access Switches shall be provided sufficient port density to meet all the required links.

4.3.7 The Access Switches shall support PoE and shall conform to IEEE 802.af / IEEE 802.3af standard, which delivers power over single copper UTP cable for WLAN AP.

4.3.8 The Access Switches shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, IEEE 802.1D Spanning-Tree Protocol.

4.3.9 The Access Switches shall support Virtual local area network (VLANs) including support for IEEE 802.1Q and IEEE 802.1p.

4.3.10 The Access Switches shall support WebGUI Management, Access Control Lists (ACLs), DHCP Relay and SNMP.

#### **4.4 Firewall**

4.4.1 The performance of the Firewall shall not be degraded with 100% Internet bandwidth utilization.

4.4.2 Network Address Translation (NAT) is required.

4.4.3 Access Control Policy is required.

4.4.4 The configuration settings of the appliance shall be allowed to export to files for backup and restore for rapid recovery and shall control all incoming and outgoing Internet traffic, serving as the sole entry and exit point between the Internet and the WLANs in all locations.

4.4.5 The configuration settings of the appliance shall support blocking specific network ports, including ports of Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). Blocking denial of service (DoS) attacks and malformed packet attacks shall also be configured.

4.4.6 The firewall policy should be applied to control network traffic such that public users should be prohibited to access the internal network segments of the School.

4.4.7 The firewall shall be scalable to support broadband over 800Mbps without performance degrade. If it cannot be supported in the future, the contractor shall bear all the hardware, software and service cost for replacement.

#### **4.5 Service Requirements**

4.5.1 The Contractor shall be responsible for the total project management and shall assign a person to act as the single contact point to the School regarding all related activities of the contract. This single contact point cannot be transferred to a sub-contractor unless explicitly agreed by the School. Contractor should formally inform the School in writing if there is a change of contact point.

4.5.2 The project manager of this project shall be the permanent staff of the contractor for at least 6 months. The contractor shall prove that the project manager is the permanent staff by providing supporting documents during tender submission.

4.5.3 The project manager shall attend the project meeting before completion of the project.

4.5.4 The Contractor shall provide rack/cabinet or use existing school rack if there is available rack space. All switches/firewall shall be properly installed into wall mounted cabinet or rack.

4.5.5 Cables shall be labelled with connected port and its device id.

4.5.6 All the equipment shall be labelled with an identifiable id.

4.5.7 The placement of cables, cabinets, racks and appliances shall be shown on the network diagram.

4.5.8 Switches and/or other appliances shall be properly installed into cabinet/rack with appropriate ventilation.

4.5.9 13A power cord(s) shall be bundled with appliance(s).

4.5.10 Cable shall be properly set up onto appropriate cable management guide.

4.5.11 Contractor should make sure that the actual environment is suitable for the installation and operation of equipment with School agreement in advance, and make necessary suggestions, if any.

#### **4.6 Service Level Requirements**

4.6.1 The Contractor shall provide incident/problem report to the School within 5 working days after each incident and the resolution taken.

4.6.2 The Contractor shall derive mechanism, including forms and reference tables for measuring and recording the Service Level Measures, to ease the administration and monitoring by the School.

4.6.3 Advance notice by at least 2 weeks shall be given to the School prior to all scheduled maintenance. At most 4 scheduled maintenances per year are excluded from the calculation of Service Levels. No more than 1 hour service interruption or an agreed time slot is accepted for each scheduled maintenance.

4.6.4 Service Level, expressed in percentage, is the ratio of actual available time to the scheduled available time for the WiFi network of the School and is calculated according to the following formula:

Service Availability Level = (Schedule Uptime within the month –  
Unscheduled Downtime within the month) / Scheduled Uptime within the  
month, where

**Scheduled Uptime:** The duration, in unit of minutes, for the WiFi network of the School is scheduled to be available for the month. The duration will exclude the scheduled downtime, which is defined as duration agreed between the School and the Contractor during which the service may be deliberately made unavailable to users.

**Unscheduled Downtime:** The amount of time, in unit of minutes, that the service are unavailable due to equipment failure or other reasons under the responsibility of the Contractor.

#### **4.7 Service Level Rebates**

4.7.1 The Service Rebates to the School operate as liquidated damages for the performance fallen short of the target service levels over a period of one month. The service measures stipulated in 4.6 will be used to determine the Service Rebates in Service Availability (S1) and Service Resumption Time (S2).

4.7.2 The application of the Service Level Rebates adjustment to the monthly charge will commence with effective from the acceptance of the reliability test.

4.7.3 For each month, the Service Rebates for different service measures (S1, S2) will be calculated as below if the Contractor cannot meet the target Service Levels for the WiFi network of the School under the availability agreed:

$\text{Failure Hour} \times [(\text{Yearly Subscription Fee}) / (365 \times 24)] \times 2$ , where

**Failure Hour:** The unscheduled downtime or the time to resume the network due to the failure of hardware or software which is provided by the Contractor. Failure Hour is calculated in the increment of 0.5 Hour.

4.7.4 The Service Rebates of the WiFi network of the School, if any, will be paid by crediting the invoice of the following month.

#### **4.8 Helpdesk Service**

4.8.1 The Helpdesk Service shall maintain dedicated hotline, including phone, email and fax, for enquiries and complaints.

4.8.2 The Helpdesk Service shall answer enquiries and complaints originated from the School concerning the Service.

4.8.3 The Helpdesk Service shall operate from Mon to Sat 8:00 am to 6:00 pm.

4.8.4 The Helpdesk Service shall maintain call logs on enquiries and complaints. The information shall be included but not be limited to date, time, description of issues, contact information, and follow-up actions. The Contractor shall observe and comply with Personal Data (Privacy) Ordinance in handling all information relating to these enquiries and complaints.

4.8.5 The Contractor shall provide the following information concerning the Helpdesk service related to the implementation of the Service:

- Detailed information of the helpdesk office, such as address, phone number, fax number; and
- Facilities, computer systems and equipment provided in the helpdesk office, such as private branch exchange (PBX), keyline telephone system (KTS), interactive voice response system (IVRS) and voice recording system.

4.8.6 The Contractor shall provide helpdesk staff with the necessary tools, including but not limited to hardware and software, related training for supporting the Service.

4.8.7 The Contractor shall not make use of the Helpdesk Service to transmit any message or conduct any activity to the School, which is not connected with the provision of the Service. The School shall have the full discretion to determine whether any such message or activity is in breach of this provision. The Contractor shall forthwith stop transmitting such message or conducting such activity and refrain from doing it further once the School has notified the Contractor in writing or verbally of its determination.

## **4.9 User Acceptance Test**

4.9.1 The Contractor shall conduct tests with the School before the service is officially accepted and subscription started. Tests shall include User Acceptance Test for reliability and performance of the hardware and software, and also the monitoring, operation support and all other aspects related to the Service Level Agreement of the Service. At least 14 school working days of trial period is expected for service monitoring after testing.

4.9.2 The contractor will be required to perform test making reference to the User Acceptance Test and System Test documents at [www.edb.gov.hk/ited/wifi900](http://www.edb.gov.hk/ited/wifi900). They include the types of testing to be performed, the requirements to be tested, the testing environment, testing tools and pass/fail criteria as reference to the Contractor.

4.9.3 The Contractor shall upon request by the School arrange briefings to the School and/or Responsible Parties of the School, with briefing materials, prior to the User Acceptance Test when required.

4.9.4 The Contractor shall provide detailed acceptance test plan and a step by step testing procedure with expected results against the requirements set out in this specification.

4.9.5 The Contractor shall provide, configure and set up the proper software and hardware for the School to carry out the User Acceptance Test.

4.9.6 The Contractor shall be required to carry out tests to demonstrate that the equipment and system meet the specification and other contractual requirements. The Contractor shall also be responsible for the timely preparation and compilation of all test schedules, test procedures and test reports.

4.9.7 The Contractor shall follow the agreed standards as laid down in this specification for the testing methods and procedures.

4.9.8 The Contractor shall submit a schedule of site performance and commissioning tests at least 3 working days prior to the commencement of

the scheduled commissioning date.

4.9.9 Special tools, test equipment, test objects and simulators required for the demonstration of either bench or commissioning tests shall be made available by the Contractor at no extra charge to the School.

4.9.10 All test equipment used by the Contractor shall be properly and periodically calibrated. Measuring standards used in calibration shall be traceable to international or national measurement standards, or to an industry recognized manufacturer's reference, subject to approval of the School.

4.9.11 Calibration procedures and results shall be documented and signed by certifying body where applicable. The Contractor may be requested to show evidence of calibration of test equipment by submission of copies of these calibration records prior to conduction of any tests.

4.9.12 The Contractor shall submit the User Acceptance Test report within 3 working days. The acceptance of the installation will only be granted after receiving a satisfactorily UAT report from the Contractor.

4.9.13 All equipment to be installed may be subject to inspection and bench testing. The Contractor shall meet the cost of deliveries for bench test. Notwithstanding, the Contractor shall have carried out the tests in accordance with the requirements and procedures stipulated in this specification and submitted the associated test reports for inspection.

#### **4.10 Termination of Service**

4.10.1 The School reserves the right to terminate all or part of the Service at any time with written notice of 10 working days in advance if:

- The Contractor fails to meet the target service levels under Service Level Requirements for two consecutive months, or three months in total within the committed subscription period;
- The School suspects that unauthorized activity has occurred or is occurring in relation to the Service;

- The provision of the Service will cause the School to be in breach of any applicable law;

4.10.2 The Contractor shall provide to the School and implement the Exit Plan in accordance with:

- The Contractor shall provide to the School an Exit Plan with feasible arrangements before the committed subscription contract date;
- If the School considers the Exit Plan as not satisfactory, it will notify the Contractor with comments. The Contractor shall revise the Exit Plan by taking into consideration of the School's comments and provide to the School with five (5) working days after the date of receiving the School's comments. If the Exit Plan has been considered as not satisfactory for three or more times, the School shall have the right to terminate this Contract by giving 10 days' notice in writing;
- Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
- The Exit Plan shall aim at enabling the School or its authorized parties to perform in substitution for the Contractor and to eliminate or minimize any disruption or deterioration of the Service. The Exit Plan shall contain, but not limited to the following information:
  - Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
  - Any information that is necessary for the School or a new service provider to continue the provision of the Service;
  - Details of the Contractor's personnel and other resources that will assist the School or the School's authorized parties during the handover;
  - All provisions of facilities such as trunks, conduits, cables, LAN ports and power points, shall be considered as fixture of the School venues and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.
- The Contractor shall be responsible for the implementation and execution of the Exit Plan and shall ensure that the exit plan is carried out in a timely and orderly manner.

## **4.11 Wi-Fi Project Reference**

4.11.1 The Contractor shall list out 3 Wi-Fi 100 reference cases with compliment letters.

4.11.2 The compliment letters shall be provided during the tender submission

4.11.3 To prove that the Contractor has the capability on WiFi system design and maintenance, The Contractor shall list out 20 reference cases in non-subscription model which uses the same wireless solution vendor as the proposed brand in last 3 years while the cases in a single year shall not be less than 5.

4.11.4 The project references shall be provided during tender submission.

## **5. Technical Specification (Add-on Requirement)**

**<Refer to Part IV>**

## **6. Wi-Fi.HK (optional service)**

6.1 The implementation of Wi-Fi.HK is advocated by the School, the decision of the implementation will not be served as a basis of discrimination for proposal evaluation.

6.2 To make it easier for the public and visitors to access free Wi-Fi services in Hong Kong, one of the initiatives in the 2014 Digital 21 Strategy is to promote the free Wi-Fi services offered by the public and private sectors in Hong Kong under a common Wi-Fi brand “Wi-Fi.HK”. It will help the public and visitors find and connect to the public Wi-Fi hotspots throughout Hong Kong. These free hotspots will be promoted under the Wi-Fi.HK brand through various means such as the Wi-Fi.HK thematic website and mobile app. With a common brand in place, it will create more business opportunities for the Wi-Fi.HK participating organisations to promote and deliver their products and services to their

customers by leveraging on mobile technologies.

6.3 Contractor is invited to provide free Wi-Fi service riding on the same Wi-Fi network infrastructure using the Wi-Fi.HK SSID for school visitors such as parents to access the Internet in schools and such services shall incur no additional charge to the School.

6.4 The following are the requirements of the Wi-Fi.HK scheme:

- Aggregated total of at least 30 minutes free access time per day per device;
- Service available 24 hours x 7 days;
- All Access Points be registered with OFCA;
- SSID of Access Points be presented in “Wi-Fi.HK via <designated name of service provider>” format;
- Landing page with Wi-Fi.HK logo, terms and conditions and disclaimers for user to accept for connection but no need for user to login using username or password;
- Hotline service and contact email be provided for public enquiry and technical support; and
- At least 100 Access Points be offered (counted by Service Providers including services in multiple schools)

6.5 The network for supporting Wi-Fi.HK shall not be allowed to have direct access to the School’s network. Connections via Wi-Fi.HK shall have access to the Internet only.

6.6 Content filtering is not a requirement for Wi-Fi.HK.

6.7 When the School terminates all or part of the Service, the Wi-Fi.HK service of the related area will be terminated together. The School also reserves the right to request the Contractor to terminate or suspend the Wi-Fi.HK service at any time.

6.8 More details of the scheme can be found at Wi-Fi.HK thematic website (<http://www.wi-fi.hk>).

## **7. Sub-Contracts**

7.1 The Tenderer shall be the prime Contractor for all the services

specified in Part X and Part Y of this contract. The Tenderer shall be the single point of contact for all contractual matters.

- 7.2 The Tenderer shall be liable for the performance or breach of any provisions of the contract by Sub-Contractors.
- 7.3 The Tenderer shall provide details of the sub-contract service for the Wifi operation and maintenance of the Sub-Contractors in the format listed on Section 5 of Part Y. The hierarchy of the sub-contracting shall also be clearly stated below. If there are no Sub-Contractors, please enter nil.
- 7.4 No Sub-Contractor(s) specified in Section 5 of Part IV shall be replaced unless prior written consent has been given by the School.
- 7.5 The Tenderer shall ensure that the quality of the service rendered by the Tenderer shall not be affected due to any change of Sub-Contractors;
- 7.6 The Tenderer shall not be relieved from any of its obligations hereunder by entering into any sub-contract for the performance of any part of this contract. If request by the School, the Tenderer shall describe which part of the service shall be performed by the Sub-Contractor(s) in the sub-contract(s) between the tenderer and its Sub-Contractor(s).

## 8. Schedule of Work

8.1 The Contractor shall provide the service according to the following schedule.

Phase	Items	Starting Date	Ending Date	Service fee
I	Build up of WiFi network	On or before Aug 2019	31 Aug 2019	0
II	Subscription of service	1 Sep 2019	31 Aug 2020	Quoted price
			31 Aug 2022	Quoted price

## **9. Terms of Payment**

9.1 The subscription will be paid in arrears of each month during the subscription period.

## **10. Price Proposal**

10.1 The Service Provider is required to provide a breakdown on the service charges for each of the service items as set out in the Price Proposal at **PART IV - PRICE SCHEDULE**. Failure in complying with this requirement will render the quotation disqualified.

10.2 Please note that, the School has the absolute discretion to accept the whole of the Services or just part of the Services as listed out by items in the Price Proposal.

10.3 Set up cost will not be considered as a part of the cost in subscription mode.

## **11. Invitation for Quotations**

11.1 Quotations are invited for the execution of the whole of the Services as described in this document. Quotations for part but not all of the Services will not be considered.

11.2 Please provide two sets of quotation documents for processing of the quotation.

## **12. Tender Preparation and Submission**

12.1 The Service Provider is required to submit the following information and document.

- A Statement of Compliance to provide response that the quotation complies with all requirements stated in this Specification.
- Price Schedule
- No upfront cost or one off cost schools shall be paid throughout the entire subscription period.
- Proposed AP location mark on the Floor plan.
- Proposed Network infrastructure show on the Network Diagram.
- Implementation Plan.
- WiFi Access Point certificates issued by OFCA.
- Product information including technical and descriptive literature and catalogues. Information provided by the manufacturer shall be able to substantiate that the products offered meet the mandatory Technical Specification.

## **13. Briefing Session/Site Visit**

13.1 To facilitate the Service Provider to propose the quotation, a briefing session is arranged as follows. The Service Provider must attend the briefing session and carry out WiFi survey with appropriate tools.

**Date: From 2<sup>nd</sup> July,2019 to 18<sup>th</sup>July,2019 (except Saturdays and Sundays)**

**Time: 9:30- 16:00**

## **14.Selection and Payment**

School is looking for a contractor based on the following criteria

- Proposed pricing
- Proposed solution
- Equipment and services level
- Case reference
- Other useful information

## **15.Enquiry**

For enquiry, please contact <**Miss Seto Chui Ping**> of the School at <[stcp@lyps.edu.hk](mailto:stcp@lyps.edu.hk)> or by phone at <**26740538**>.

**PART IV - PRICE SCHEDULE**

**1. Price details for Standard Provision**

<b>Standard Provision</b>	<b>3 years</b>		<b>5 years</b>		<b>School's choice on confirmation</b>
	<b>Monthly price</b>	<b>Annual price</b>	<b>Monthly price</b>	<b>Annual price</b>	
WiFi Service Subscription (Requirement as stated in Part III) A pair of WLAN controller must be provided for redundancy purpose					
Total in HK\$					

**2. Price details for Add-on Services (Offer will be considered on itemized basis)**

<b>Add-on Service</b>		<b>3 years</b>		<b>5 years</b>		<b>School's choice on confirmation</b>
<b>Item</b>	<b>Description</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	
WiFi coverage	-17 classrooms (35)					

<b>Add-on Service</b>		<b>3 years</b>		<b>5 years</b>		<b>School's choice on confirmation</b>
<b>Item</b>	<b>Description</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	
for other areas	English room (70) -Teacher's room1 (60) -Teacher's room2(30) -Reception room (20) -Computer room (60) -Meeting room( 20) -Hall(250) -Library(30) -Music room (70) -Counselling room (30) -Social work's room (10) -Store room (20) -Waste Water Recycling System (30, outdoor) Playground (outdoor, 70)					

<b>Add-on Service</b>		<b>3 years</b>		<b>5 years</b>		<b>School's choice on confirmation</b>
<b>Item</b>	<b>Description</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	
	(XX) = number of concurrent connections supported at least					
Authentication Method	<ul style="list-style-type: none"> <li>● Pre-shared key(guest network)</li> <li>● MAC filter (student ssid)</li> <li>● MAC filter(staff ssid)</li> </ul>					
Session Control	<ul style="list-style-type: none"> <li>● Use mac filter(no session control needed)</li> </ul>					
WLAN Access Control	<ul style="list-style-type: none"> <li>● Pre-shared key(guest network)</li> <li>● MAC filter</li> </ul>					

Add-on Service		3 years		5 years		School's choice on confirmation
Item	Description	Additional monthly price	Additional annual price	Additional monthly price	Additional annual price	
	(student ssid) ● MAC filter(staff ssid)					
Internet Content Filtering Service	● Exclude gambling, adult content, violence, gaming ● Force google safe search					
Integration of networks	● Recabling existing network (separate network)					
Internet addresses	● True IP address ● Use firewall to					

<b>Add-on Service</b>		<b>3 years</b>		<b>5 years</b>		<b>School's choice on confirmation</b>
<b>Item</b>	<b>Description</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	
subscription & configuration	configure inbound services					
Monitoring of WiFi network	<ul style="list-style-type: none"> <li>● connection monitoring (with bandwidth usage)</li> <li>● recording attempts to enter the filtering internet content(device MAC/username log)</li> </ul>					
Redundancy	<ul style="list-style-type: none"> <li>● No need</li> </ul>					
WiFi Service Recovery	<ul style="list-style-type: none"> <li>● support four-hour response</li> </ul>					

<b>Add-on Service</b>		<b>3 years</b>		<b>5 years</b>		<b>School's choice on confirmation</b>
<b>Item</b>	<b>Description</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	<b>Additional monthly price</b>	<b>Additional annual price</b>	
	time and four-hour service recovery with active monitoring					
Support hours	<ul style="list-style-type: none"> <li>● 4 hours on site(Mon to Sat)</li> </ul>					
Reporting	<ul style="list-style-type: none"> <li>● No need</li> </ul>					
Contract End Arrangements	<ul style="list-style-type: none"> <li>● All provisions of trunks, conduits, cables, LAN ports and power points shall be considered as fixture of the School and shall become the property of the</li> </ul>					

Add-on Service		3 years		5 years		School's choice on confirmation
Item	Description	Additional monthly price	Additional annual price	Additional monthly price	Additional annual price	
	School					

### 3. Wi-Fi.HK Service

Wi-Fi coverage area of Wi-Fi.HK :	No needed
Will you provide free Wi-Fi.HK service (Y/N) ?	Y/N (to be input by Contractor)

### 4. Details of equipment to be proposed in the Buildup of WiFi network in the School

Items	Quantity	Model
WiFi Controllers		
Access Points		
Router/Firewall		
Core Switch		

Access PoE Switches		
LAN Cables		
Others (please specify)		

**5. The Tenderer to provide details of the sub-contract service involved in the proposal for the project implementation, service operation and maintenance in the format listed below**

Name of Sub-Contractor	Sub-contract service	Roles and responsibility

**6. The Tenderer to provide case reference of past deployment in WiFi100/WiFi900 with Sub-Contractors details in the format listed below**

Name of School	Name of Sub-Contractor	Sub-contract service	Roles and responsibility


**7. A floor plan (provided by the School) is attached.**

Annex: Floor Plan of the School