

PART X –An example on Wi-Fi REQUIREMENTS SPECIFICATION

1. Introduction

The Contractor is invited to

- Build up a Wi-Fi network in < **Hong Kong Taoist Association of Shun Yeung Primary School** > (The School); and
- Provide and maintain a Wi-Fi service through subscription mode.

2. Background

The School will **enhance / top up** the IT infrastructure so as to set up the necessary Wi-Fi environment in the school premises (full Wi-Fi coverage in ALL classrooms) for supporting e-learning in class. Regarding the enhancement of Wi-Fi 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 Wi-Fi network. The Contractor shall be capable of supporting the requirements set out below.

3.1 Standard Provision

- **Wi-Fi Internet Connectivity** – use Wi-Fi 6 or Wi-Fi 7 network or above in a standard classroom or special room. The minimum number of classrooms to be covered shall be at least equal to the number of approved classes for the 2026/27 school year, that is <36> classrooms.
- **Number of Concurrent Connection** – commensurate with the maximum number of students, say <40 tablets/expected>, in a class with at least <2.5Mbps/expected> upload / download bandwidth per connection
- **Number of classrooms using Wi-Fi concurrently.**
- **Authentication Method** – use 802.1x standard based authentication and Hong Kong Education City single sign-on services.
- **Guest Wi-Fi landing page** – The Wi-Fi rental service must include a customizable landing page that prominently displays the school logo and clearly identifies the school upon connection.
- **Wi-Fi landing page** – The landing page support OAuth Google or O365 authentication.
- **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** – Provide a Content delivery network topology (CDN) and Cloud based Internet Content filtering profile commonly adopted by most schools with ability to create black / White list filters and managed by vendors and school.

- **Existing Network Facilities** – Do not rely on any existing school internal network. The Wi-Fi network shall be physically separated from the school network. Or support to connect school Fiber to classroom network by school VLAN and POE+ or POE++ switch and separate internet connection.
- **Broadband Network** – use separate broadband for the Wi-Fi service. State otherwise if the existing broadband can be utilized for the service.
- **Managed Service** – operate the Wi-Fi and its networking devices using managed service model, provide end-to-end service with single point of contact including configuration, provisioning of service, proactive remote monitoring, maintenance and regular reporting.
- **Service Level Agreement** – ensure at least 99.7% availability of the Wi-Fi 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.
- **Wi-Fi Industrial standard** – The manufacturer of the Wi-Fi should be positioned as a leader or visionaries in the “2024 Gartner Magic Quadrant for Enterprise Wired and Wireless Lan Infrastructure”
- **Network equipment and Wi-Fi equipment product position in enterprise grade and not acceptable in SME and home use and consumer retail product line.**
- **Internet Content Filtering Service Industrial standard** – The content filtering services should be positioned as a leader in the Gartner Magic Quadrant for web application in 2022 years.
- **Mobile APP Wi-Fi connection** – Support to present a school hotline number instead of a personal mobile number when away from the desk. Mobile app mainly is communication in between Hong Kong Exchange and Mobile App.
- **Network management portal** – A network management portal that allows school to monitor both the school network and Wi-Fi network in one place. The portal displays the Wi-Fi status, network switch status, and mobile device status.
- **Solution assurance and stability** – Accept only the brand’s enterprise grade solution and support up to 4 years hardware warranty and life cycle. Any SME or consumer grade solution will not be considered.

3.2 Add-on Service (to be aligned with Part Y)

- **Wi-Fi coverage** – to include special rooms and open areas
- **Broadband Service** – provide at least <2.5Gbps>Mbps Internet connection at school.
- **Authentication Method** – Authentication method shall includes WPA2 Enterprise, 802.1x and well as MAC address filtering and user account system being used by school and support Microsoft 2016 AD server authentication (Radius), etc.
- **Session Control** – Guest Landing page shall support session control where access time can be changed by school
- **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 <the Contractor >.
- **Internet Content Filtering Service** – Cloud based Internet Content filtering profile in Hong Kong commonly adopted by most schools with ability to create black / White list filters and managed by vendors and school.
- **E-Mail Filtering Service** – can integrate with cloud base email filtering to protect client from email hazard.
- **Integration of networks** – system integration with existing network with secure design.
- **Internet addresses subscription & configuration** – for Internet access to school internal resources, via system integration
- **Monitoring of Wi-Fi network** – specific request on monitoring of Wi-Fi network by the Contractor and the School.
- **Redundancy** – increase the availability of the Wi-Fi service.
- **Support hours** – extended support hours and/or reduced time for recovery, the SLA must be 4 hours response and 4 hours onsite
- **Contract End Arrangement** – Other arrangements
- **Internet auto failover service by Mobile** – capable to support auto failover and failback when exiting broadband is down.
- **Mobile Internet Backup Services** - capable to support automatic failover and failback between fixed broadband circuit and mobile network to provide uninterrupted connectivity when the primary broadband connection is unavailable.
- **Wi-Fi Singal** – Supports Wi-Fi signal tuning to optimize performance when interference occurs or stability is compromised.
- **Wi-Fi patch update** – Provides patch updates in response to worldwide security vulnerability announcements and bug fix for related apple Wi-Fi device connection.
- **AI cloud analytics** – support application traffic analysis report and AI signal tuning recommendation within one month history record.
- **Should support incident analytic including** – ability to provide root cause and recommended action event log such as DNS relate issue, DHCP issue, power issue, Radius issue
- **Should support Built-in Service Validation** – ability to validate the service without adding any hardware probe or sensors. Access points act as virtual clients to allow the system to identify possible service disruptions before they affect users, including PING / Traceroute to internet, DHCP service, DNS service and speed test.
- **Should support IT service management integration** - integrates closely with leading IT service management (ITSM) products from ServiceNow and Salesforce to initiate helpdesk tickets automatically and let IT get a head start in resolving them. This ensures that, when a service issue occurs, it is flagged for the helpdesk to address.

3.3. Deliverables

3.3.1 The Contractor is required to provide the following deliverables for the Wi-Fi 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 Wi-Fi Network

4.1.1 The Wireless LAN (WLAN) System of the Wi-Fi network shall support Cloud-based WLAN Controller in Managed model. Thus local Controller in school is not acceptable. The Cloud-based WLAN Controller is capable of fully centralized provisioning, configuration and monitoring all APs functionalities; a backup of the Cloud-based WLAN Controller shall be available in Hong Kong.

4.1.2 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.

4.1.3a The WLAN access points (APs) must be compatible with Wi-Fi 6 and conform to the IEEE 802.11a/b/g/n/ac Wave 2/ax standard or higher. They should support dual-band operation with a minimum configuration of 2x2:2 for the 2.4GHz and 5GHz bands, and include features such as OFDMA, MU-MIMO, and built-in smart antennas.

4.1.3b For Wi-Fi 7 environment, The WLAN access points (APs) must be compatible with IEEE 802.11a/b/g/n/ac Wave 2/ax/be standard or higher. They should support tri-band operation with a minimum configuration of 2x2:2 for the 2.4GHz, 5GHz, and 6GHz bands, and include features such as OFDMA, MU-MIMO, built-in smart antennas, Multi-Link Operation (MLO), and higher modulation (4096-QAM). Additionally, Wi-Fi 7 must be compatible with the same Wi-Fi 6 management platform for unified single portal management.

4.1.4 The Contractor shall design the WLAN System to provide the coverage for the required wireless coverage place. The received signal strength measurement from the Wi-Fi Service at the Wi-Fi 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 Wi-Fi client device for testing satisfies the power emission requirement.

4.1.5 The WLAN AP shall support PoE, WPA2, WPA3, IEEE 802.1x and certificate authentication.

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

4.1.7 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.

4.1.8 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.

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

4.1.10 Individual APs shall be allowed to be assigned by more than one SSID and up-to four SSIDs. And support a separate VLAN for EMSD Wi-Fi device connection.

4.1.11 Antennas of APs shall be capable of detecting user locations in real time for direction switching while devices in motion, beam forming.

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

4.1.13 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.

4.1.14 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.

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

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

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

4.1.18 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.

4.1.19 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/OS2 Fiber, patch cable UTP Cat 6 / OS2 Fiber Optics, any required license and all associated accessories.

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

4.1.21 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.

4.1.22 The WLAN System shall support Web GUI management.

4.1.23 FTP service shall not be allowed in the Wi-Fi network (to avoid exchanging credential and files in plain text without any encryption).

4.1.24 Mobile 5G Router for Mobile Internet Backup

- System Features:
 - Support fault alert
 - Support single view for the Wi-Fi and 5G status
 - Support auto failover between School Wi-Fi fixed broadband line and 5G network
- Mobile 5G Router:
 - Cellular: Standard compliant: 3GPP Release 15(both LTE and 5G)
 - LAN port: Support up to 2 x 1GE LAN Ports (RJ45)
- LED display:
 - Signal strength indicator
 - 5G network status
 - LAN Port status
- Peak data rate:
 - Sub-6 DL: 2.3Gbps
 - UL:1Gbps

4.1.25 The WLAN system deployed shall be non-Asian brand.

4.1.26 The AP must comply in the Trade Agreements Act (TAA)

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 and ARP table support up to 1500 and 4 x 10G SFP+.

4.2.2 The Core Switch shall be capable of providing DHCP Services for IP addresses distribution for mobile devices connecting to the network, and the required bandwidth, QoS, and policy-based routing to carry all sorts of information including video, voice, data, image, etc.

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

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

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

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

4.2.7 The Core Switch shall support WebGUI Management for contractor's support, Access Control Lists (ACLs), DHCP Interface and SNMP.

4.2.8 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 and support Cloud-based management

4.3.2 The Access Switch shall consist of 8/12/24/48 x 10/100/1000Base-T Ethernet ports with POE+ for Wi-Fi 6 or with PoE++ for Wi-Fi 7, 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 802.3at / IEEE 802.3bt 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, Content Filtering and Anti-Malware services are required.

4.4.4 Shall support at least 3Gbps Firewall throughput

4.4.5 Shall support at least 256k concurrent sessions

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 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.

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

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

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

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

4.5.7 13A power cord(s) shall be bundled with appliance(s).

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

4.5.9 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 Wi-Fi 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 Wi-Fi 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 minute that the services 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 Wi-Fi network of the School under the availability agreed:

$\text{Failure Hour} \times [(\text{Yearly Subscription Fees}) / (365 \times 24)] \times 2$, 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 Wi-Fi 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 at Hong Kong location 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/Wi-Fi900. 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 at least 50 Wi-Fi 100 and 200 Wi-Fi 900 reference cases with compliment letters. The compliment letters shall be provided during the tender submission

4.11.2 The project references shall be provided during tender submission.

5. Technical Specification (Add-on Requirement)

5.1 < Mobile IP phone app

The contractor should provide a mobile IP phone app with the following features:

- **Able to present school hotline number instead of personal mobile number when away from the desk**
- **Dedicated Office Number Equipped with Presence Management for Direct Contact Document can be attached for quick reference**
- **Office Visual Voicemail to Separate Work & Personal Life**
- **Dedicate page and clear indication allow staff to quick response to the messages; An office voicemail box will be provided for work-related calls; Voice messages with caller information will be listed clearly in the app**
- **The app must not use more than 10kb per call, and uses actual mobile voice minutes during the voice call**
- **The app must not use the mobile number for app activation/registration**
- **Keep user privacy by not showing teacher's individual numbe**

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, the Government is promoting 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 organizations 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 [or as long as the venue is accessible to the user](#);
- All Access Points providing public Wi-Fi service 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, contact email or on-site support be provided for public enquiry and technical support; and
- Preferably with installation of digital server certificate issued by recognized certificate authority on the landing page so that users can easily discern the legitimacy of the Wi-Fi services.

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 Wi-Fi 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 Y 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 Wi-Fi network	On or before July 2026	31 Aug 2026	0
II	Subscription of service	1 Sep 2026	31 Aug 2029	Quoted price

9. Delay of Schedule

9.1 If the Contractor fails to provide any part of the Wi-Fi service which shall be ready for use in the School within 60 days after the target Ending Date specified in Section 8 of Schedule of Work then notwithstanding anything else contained in this Contract the School shall be entitled to terminate this Contract with forthwith by giving written notice to the Contractor and to recover from the Contractor the amount of all damages and loss suffered by the School resulting from such failure, including without limitation to any damages and loss resulting from the termination of related service orders.

9.2 Within one (1) week of the termination of this Contract, the Contractor shall collect its own Hardware and Software at his own cost after the contractor has removed the School Data in the Hardware.

9.3 The Contractor shall reinstate and make good the concerned area of the School to the satisfaction of the School after removal of the hardware.

10. Terms of Payment

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

11. Price Proposal

11.1 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 Y - PRICE SCHEDULE**. Failure in complying with this requirement will render the quotation disqualified.

11.2 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.

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

12. Invitation for Quotations

12.1 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.

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

13. Tender Preparation and Submission

13.1 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.
- Wi-Fi 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.

14. Briefing Session/Site Visit

14.1 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 Wi-Fi survey with appropriate tools.

Date: **To be confirmed**

Time: **To be confirmed**

Venue: **To be confirmed**

15. 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

16. Enquiry

For enquiry, please contact **<Mr. Wong Hok Man>** of the School at **<hmwong@syps.edu.hk>** or by phone at **<2642 2355/ 6501 7982>**.

PART Y - PRICE SCHEDULE

1. Price details for Standard Provision

Standard Provision	3 years		School's choice on confirmation
	Monthly price	Annual price	
WiFi Service Subscription (Requirement as stated in Part X) -Total Number of Classroom: 36 G/F:Hallx2 1/F:6 Classrooms(Rm102-107) 2/F:6 Classrooms(Rm202- 205,215,218) 3/F:6 Classrooms(Rm302-307) 4/F:6 Classrooms(Rm402-407) 5/F:6 Classrooms(Rm502-507) 6/F:6 Classrooms(Rm602-607) Connection (Requirement as stated in Part X)			
Total in HK\$			

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

Add-on Service		3 years		School's choice on confirmation
Item	Description	Additional monthly price	Additional annual price	
Wi-Fi coverage for other areas	<ul style="list-style-type: none"> ● -Total Number of special room and site: G/F: G04, G05, G06, G09, G10 ● Cover Playground ● 1/F: Activity Room(Rm113) <ul style="list-style-type: none"> ● Library(Rm114), ● Hall Garret(Rm116) ● 2/F: Music Room(RM206), ● Visual Arts Room(RM207), ● Rm213, Rm214, IT Room(Rm216) 			

Add-on Service		3 years		School's choice on confirmation
Item	Description	Additional monthly price	Additional annual price	
	<ul style="list-style-type: none"> ● 3/F: Rm313, Rm314, Staff Room (Rm316) ● 4/F: Rm414, Rm415, Steam Room (Rm418) ● Music Room(Rm420) 			
Broadband service	● Defined in Part X			
Authentication Method	● Defined in Part X			
Session Control	● Defined in Part X			
WLAN Access Control	● Defined in Part X			
Internet Content Filtering Service	● Defined in Part X			

Add-on Service		3 years		School's choice on confirmation
Item	Description	Additional monthly price	Additional annual price	
Integration of networks	<ul style="list-style-type: none"> ● Defined in Part X 			
Internet addresses subscription & configuration	<ul style="list-style-type: none"> ● School must have administrative right to manage subscription & configuration 			
Monitoring of Wi-Fi network	<ul style="list-style-type: none"> ● School must have administrative right to manage WiFi network 			
Redundancy	<ul style="list-style-type: none"> ● To be specified by School. 			
Wi-Fi Service Recovery	<ul style="list-style-type: none"> ● To be specified by School 			
Support hours	<ul style="list-style-type: none"> ● To be specified by School. 			
Reporting	<ul style="list-style-type: none"> ● To be specified by School. ● 			

Add-on Service		3 years		School's choice on confirmation
Item	Description	Additional monthly price	Additional annual price	
Contract End Arrangements	● To be specified by school.			

3. Wi-Fi.HK Service

Wi-Fi coverage area of Wi-Fi.HK :	School Hall and Lobby
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 Wi-Fi network in the School

Items	Quantity	Model
Wi-Fi 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 Wi-Fi100/Wi-Fi900 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

Marking Scheme for Tender

The marking Scheme will involve two stages including:

Stage 1

The tender is assessed according to all the requirements stated in the Appendix I in this stage. The tender will not be assessed further in the case that the tender does not meet all the requirements stated in the Appendix I.

Stage II

The tender must meet all the requirements stated in the Appendix I in this stage. The service, the quality, the price and the credibility stated in the Appendix I provided by the Company will be assessed further.

Credibility	10%
Service	60%
Quality	20%
Pricing	10%
Total Weight	100%

		Assessment Criteria	Weighting
Credibility (10%)	1.	Company background. IT project experiences. Contractor's Experience and Goodwill in building up WiFi network and infrastructure upgrade in schools over the past years	10%
Service (60%)	2.	System software and configuration (Technical architecture, security, resilience)	10%
	3.	Composition of On-Going Support/ Maintenance Services	30%
	4.	Ownership of all equipment/devices and fixture provided after contract	20%
Quality (20%)	5.	Proposed approach and methodology	10%
	6.	Manufacturer's brand name and goodwill, skill level, compatibility and stability	10%
Pricing (10%)	7.	Contractor's quoted price	10%
		Total Weight	100%