

Hong Kong-Shenzhen Innovation and Technology Park Limited

Tender Document

Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems

Tender Reference:

FD-03-06-02(337)

Tender Closing Date:

17 September 2026

12:00 p.m. (HKSAR)

IMPORTANT NOTICE

This tender document is issued by Hong Kong-Shenzhen Innovation and Technology Park Limited (“**HSITPL**”) and contains confidential information regarding the potential purchase by HSITPL as detailed in this tender document. The purpose of this tender document is to identify potential Tenderers. All information supplied by HSITPL in connection with this tender document shall be treated as confidential and strictly for the use by the recipients in response to this tender document only.

In consideration of receiving this tender document, the recipients agree and acknowledge that the tender document and any other information that may be provided to the recipients by or on behalf of HSITPL will be maintained in strict confidence and will not be disclosed to any third party. In particular, your attention is drawn to the fact that your receipt of this tender document and any discussions relating to its contents must be kept confidential at all times.

Please note that this is not an offer and it is only an invitation to interested parties to submit tenders to HSITPL for consideration.

PART I: Terms of Tender

1. General

- a) Recipients (each a “**Tenderer**”) are invited to submit tenders for supply, delivery, installation, and commissioning of standard meeting room audio-visual systems, doorway room booking systems, and digital tender box systems for Hong Kong-Shenzhen Innovation and Technology Park (“**HSITP**”, or the “**Park**”) (the “**Services**”) in accordance with the requirements of this Invitation to Tender (“**Tender Documents**”), in particular, Submission Requirements as set out in Part III of this Invitation to Tender.
- b) All information provided by HSITPL or any other representatives or agents of HSITPL for the purpose of inviting a tender in response to the Tender Documents (the “**Tender**”) shall be treated as private and strictly confidential and must not be disclosed or transferred to any other party without the prior written permission of HSITPL. The information provided in the Tender Documents is strictly for the use by the Tenderers in response to this Invitation to Tender only. Confidentiality must be maintained by all Tenderers even after the appointment of the successful Tenderer.
- c) All costs and expenses incurred by the Tenderer in preparing a Tender shall be entirely borne by the Tenderer.
- d) HSITPL reserves the right at its sole and absolute discretion to modify, amend, revise or cancel this Invitation to Tender without any liability for any cost, expenses and/or losses whatsoever which may be incurred by the Tenderers.
- e) Tenders may not be considered if false or incorrect information is provided by the Tenderer.
- f) This Invitation to Tender is merely an invitation and shall not in any way be construed as an offer by HSITPL nor constitute a contractual relationship between HSITPL and the Tenderers.

2. Accuracy and Validity of Offered Prices

- a) Tenderers shall ensure that all information (including quoted prices) in the Tenders is accurate. Under no circumstances will HSITPL accept any request to amend or revise or modify any information (including price) in the Tender.
- b) Tenderers are requested to submit its cost proposal in Hong Kong Dollars. All Tenders shall be valid for a period of **three (3)** months from the Tender Closing Date (the “**Tender Validity Period**”). The Tenderer agrees that, should HSITPL so request in writing, the Tenderer shall abide by this Invitation to Tender for a further **three (3)** months, and the Tender may be accepted by HSITPL at any time before the expiration of this extended period. If an award cannot be made within the Tender Validity Period (or extended Tender Validity Period), a request may be made to some or all of the Tenderers to further extend the Tender Validity Period, at which time they may elect to extend or withdraw their Tender or may agree a further extended Tender Validity Period with HSITPL in writing.

- c) Each and every Tender shall constitute an unconditional and irrevocable offer from the Tenderer capable of being accepted by HSITPL on the terms and conditions contained in the Tender Documents.

3. Tender Enquiries, Requests for Clarifications and Addenda

- a) All enquiries or requests for clarifications relating to the Tender Documents should be submitted in writing at least one week (i.e., seven (3) calendar days) before the Tender Closing Date to:

Chris Lam – Manager, IT Infrastructure
Email: chris.lam@hsitp.org
Telephone No.: (852) 3189 1585

The Tenderer shall state in the email subject heading “**Tender Enquiry – Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))**” and provide full contact details in the email message. HSITPL reserves the right not to respond to any enquiry or request for clarification submitted after the deadline specified above.

- b) Should HSITPL wish to clarify the Tender Documents in response to any enquiries or requests for clarifications, such clarifications will be made in writing and sent to all Tenderers by email. Such emails containing Tenderer’s enquiries or requests for clarifications and HSITPL’s answers will be bound in with, and shall become part of, the documents forming the contract for the appointment of the selected Tenderer (the “**Contract**”). Save as aforesaid and unless otherwise expressly stated by HSITPL, any other statement, whether oral or in writing, made and any action taken by HSITPL or its consultants or any of their officers in response to any query made by a Tenderer is for guidance and reference purposes only and will not be deemed to form part of the Tender or Contract or in any way alter, negate, waive or otherwise vary any of the terms and conditions contained in the Tender Documents.
- c) Prior to the Tender Closing Date (which may be extended in accordance with the terms of the Tender Documents), addenda (each, an “**Addendum**”) may be issued to clarify or modify the Tender Documents. A copy of each Addendum will be issued to every Tenderer via email and shall become a part of the Tender Documents.

4. Submission of Tender

- a) The deadline for submitting a Tender (“**Tender Closing Deadline**”) is **12:00 p.m. on 17 September 2026** (the “**Tender Closing Date**”).
- b) Tenderers shall follow a two-envelope system, as set out below, in submitting their Tenders:
- (i) Technical Proposal

The front cover of the Technical Proposal envelope shall be clearly marked with the subject of the Tender and the tender reference:

“Technical Proposal: Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))”

and the Tenderer’s company name

(ii) Price Proposal

The front cover of the Price Proposal envelope shall be clearly marked with the subject of the Tender and the tender reference:

“Price Proposal: Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))”

and the Tenderer’s company name

- c) Tenderers shall ensure that their Technical Proposal and Price Proposal are prepared in accordance with the Submission Requirements provided in the Tender Documents.
- d) Tenderers shall submit their Technical Proposal and Price Proposal separately in 2 sealed envelopes from 9:00 a.m. to 12:00 p.m. on the Tender Closing Date in the tender box located at:

Hong Kong-Shenzhen Innovation and Technology Park Limited
Unit 710, 7/F, Lakeside 1, 8 Science Park West Avenue, Hong Kong Science Park, Hong Kong

Attention: Procurement Department (Tender Box)

- e) HSITPL reserves the right to disqualify any Tenderer if price information is disclosed in the Technical Proposal.
- f) If the Tender contains any qualification and/or alternative proposal, HSITPL reserves the right to disqualify such Tender. Further, such qualifications and/or alternative proposals are generally not accepted.
- g) Any late submissions or Tenders not submitted in accordance with the provisions in Clauses 4b) to f) above will not be accepted.
- h) In the event that typhoon signal no. 8 or above or a black rainstorm warning is hoisted or announcement on extreme conditions is issued in Hong Kong between 9:00 a.m. and 12:00 p.m. (Hong Kong Time) on the Tender Closing Date, the Tender Closing Deadline will be extended to 12:00 noon (Hong Kong Time) on the next Business Day.
- i) Tenderers may be required to make a formal presentation at their own cost of their Tenders on or about 18 September 2026 (tentative date). HSITPL shall advise the exact time, date and issue formal invitation to the Tenderers.
- j) Each Tenderer can only submit one Tender. In the event that more than one Tender is submitted by the same Tenderer, all Tenders submitted by such Tenderer will not be considered.
- k) All submitted documents and materials will not be returned to the Tenderers regardless of

the results of the Tenders and all the said materials will become the property of HSITPL.

5. **Assessment Criteria**

- a) All Tenderers shall be evaluated according to the following criteria:
- 70 % Technical Capability (maximum technical score: 70)
 - 30 % Pricing (maximum price score: 30)
- b) As a prerequisite, all terms as set out in the Submission Requirements in the Tender Documents must be fulfilled before the Tender will be evaluated. Tenders which fail to comply with any of such terms will not be considered any further.
- c) Tenders which comply with all the terms as set out in the Submission Requirements will be evaluated based on the following non-exhaustive criteria (which are not ranked in any order of importance). The Tenderer must demonstrate technical merits of the submitted Tender. Assessments will be based on all materials of the submitted Tender and any presentation or demonstration given by the Tenderer.
- A. Corporate experience, track record & project delivery capacity;
 - B. Resource qualifications, project management coordination & team experience;
 - C. Core architecture, central core layout & traffic segregation;
 - D. Hardware redundancy & capacity optimization;
 - E. Acoustic calibration, commissioning, warranties & support service level agreement (SLA);
and
 - F. Price offer.
- d) Technical Score shall be assessed by the tender assessment panel members based on the criteria below:

Technical Capability Assessment		Technical Score (Points)
A. Corporate Experience, Track Record & Project Delivery Capacity	Evaluation of the Tenderer's enterprise-grade corporate audio-visual (AV) and unified video conferencing deployment experience within 3–5 years from the Tender Closing Date: • Verified track record in designing, installing, and commissioning high-density distributed AV-over-IP (AVoIP) video switching matrices, multi-channel networked digital signal processing (DSP), and advanced boardroom communication grids across Hong Kong Grade-A offices. • Proof of active tier-one / gold-level master systems integrator certifications and factory authorizations directly from the proposed premier commercial display, control automation, and video conferencing hardware manufacturers. • Demonstrated organizational engineering depth and capacity to simultaneously handle complex, multi-room corporate fit-out projects without deployment constraints.	20
B. Resource Qualifications, Project Management Coordination & Team Experience	Evaluation of the proposed execution team's technical competency, certified profiles, and project coordination frameworks: • Expert Systems Design Leadership: Direct CV verification and active certification proof of an expert-level systems designer (e.g., AVIXA Certified Technology Specialist-Design CTS-D) or equivalent senior validation) leading the structural architecture, uncompressed signal pathways, digital gain-staging, Radio Frequency (RF) tuning loop topologies, and control user interface designs. • Dedicated On-Site Project Manager (PM): Review of the proposed PM's CV, certified technical/project management credentials, and a mandatory written commitment ensuring 100% full-time, exclusive on-site presence at Building 1 of HSITP (no multi-project or account sharing) to direct physical engineering, coordinate milestone interfaces with fit-out builders, structural backplate validation, and cross-party construction tracking. • Technical team training certifications for the specific digital audio processing cores, multi-program control processors, and uncompressed video routing matrices proposed.	20

C. Core Architecture, Central Core Layout & Traffic Segregation	Evaluation of the comprehensive physical and logical audio-visual system design blueprint: • Isolated AV Subnet & Control Processor Design: Implementation of next-generation central control processors utilizing physically segregated, dedicated AV-only network subnets to completely isolate heavy multicast video routing and sensitive control system telemetry from the main corporate enterprise LAN, mitigating cross-network saturation vulnerabilities. • Integrated Networked Audio Topology: Comprehensive logical loop diagrams matching a 16-channel digital signal processor (DSP) infrastructure running native Dante/AES67 audio networking, equipped with continuous multi-path hardware Acoustic Echo Cancellation (AEC) and unified gain-staging loops for automated acoustic room balancing. • Collaborative Local & Wireless Interconnection Framework: Physical design pairing wired single-cable USB-C table bridge docks with hardware-button enterprise wireless presentation hubs, executing driverless Bring Your Own Meeting (BYOM) tracking to dynamically access in-room cameras, speakers, and microphones with strict logical isolation of guest streaming profiles.	25
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D. Hardware Redundancy & Capacity Optimization	Evaluation of hardware architecture resiliency, system capacity matching, and spatial optimization metrics across all rooms: • Infrastructure Redundancy & Power Resiliency: Explicit technical mapping showing that core managed network switches are configured with redundant, hot-swappable power modules connected to independent electrical source feeds, alongside automated real-time configuration cache backups on control processors to prevent configuration state data loss during power utility events. • Scalable 13-Room High-Density Enterprise Matrix: Comprehensive component allocation matching a baseline layout of six (6) 43-inch Ultra-High-Definition (UHD) displays for Small Meeting Rooms and eight (8) 65-inch UHD displays for CXO Executive Rooms, backed by a central head-end rack orchestrating 4 discrete audio processing cores, 24 concurrent digital microphone channels via multi-zone active RF distribution lines (antennas, amplifiers, bias-T power injects), and 3 fully stacked 52-port PoE+ network switches. • Advanced Dual-Lens Video Tracking Ecosystem: Deployment of high-end all-in-one corporate video conferencing bars featuring primary high-definition pan tilt and zoom (ptz) lenses coupled with secondary computer-vision AI lenses to execute sub-second participant counting, group auto-framing, and speaker voice tracking.	20
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E. Acoustic Calibration, Commissioning, Warranties & Support Service Level Agreement (SLA)	Evaluation of system optimization strategies, spatial calibration procedures, and post-handover project protections: • Advanced Acoustic Tuning & Room Commissioning: Detailed engineering description of the on-site calibration methodology. Tenderers must outline explicit steps for localized parametric equalizer (EQ) fine-tuning, noise-floor profiling, speaker zoning, and AEC reference path verification to compensate for architectural glass and challenging room acoustics. • Official Acceptance-Linked DLP (as defined in Paragraph 5.5.12 in Tender Schedule 5) & Licenses: Signed, clear contractual commitment ensuring that the DLP, hardware replacement warranties, and all bundled room/software subscriptions commencing strictly from the date of official written sign-off acceptance by HSITPL, not equipment delivery. • Support SLA Commitment: Fully guaranteed 24x7x365 technical service response framework incorporating a maximum 4-hour on-site engineering turnaround parameter for troubleshooting and critical hardware replacement. (Core equipment—such as the AV system server, room booking system, and boardroom equipment—must have guaranteed 24/7/365 support, other non-critical devices require next-business-day response.)	15
	Total Technical Score (A+B+C+D+E)	=100

Remark: An overall passing score of 60 out of 100 of the Total Technical Score in the table above shall be attained. Otherwise, the Tender will be considered failed in the Technical Capability Assessment and will not be considered further.

e) Evaluation

An assessment panel (“**Tender Assessment Panel**”) shall be formed by HSITPL to evaluate all Tenders received by HSITPL. The Tenders must meet all Mandatory Assessment Criteria (as defined in Part 1 of Tender Schedule 6) and attain a score equal or higher than the passing score in the Technical Capability Assessment abovementioned. Failure to declare and submit supporting documents confirming compliance with any of the Mandatory Assessment Criteria may result in **disqualification of the Tender**. HSITPL shall evaluate the Tenders in strict confidence.

f) Score Calculation Methodology

HSITPL shall adopt the following formula in calculating the overall score for each Tender:

(i) Technical Score

Tenderer’s technical score = (Tenderer’s point score / Highest point score among all Tenderers) x (Maximum technical score)

(ii) Price Score

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Tenderer's price score = (Lowest tender price among all Tenderers / Tenderer's tender price) x (Maximum price score)

Tender price refers to the Total Contract Amount as set out in Tender Schedule 4 and does not include the amount for any Optional Items as set out in Tender Schedule 4.

(iii) Overall Score = Technical Score + Price Score

6. Acceptance / Rejection of Tender

- a) HSITPL is not bound to accept the Tender which is of the lowest price and/or has the highest overall score and reserves the right in its absolute discretion to decline any offer or cancel this Invitation to Tender at any time without any obligation to explain its decision.
- b) HSITPL may, at its sole discretion, accept all or any terms proposed by the Tenderer in the Tender.
- c) HSITPL shall not be responsible for or liable to any Tenderer for any cost and/or expense and/or disbursements incurred by the Tenderers in preparing the Tender and/or any presentation or demonstration given by the Tenderer.

7. Negotiation

HSITPL reserves the right to negotiate the terms proposed in the Tender with any Tenderer.

8. Acceptance Notification

- a) The successful Tenderer shall receive a purchase order ("PO") generated from the system of HSITPL within the Tender Validity Period.
- b) Tenderer(s) who do not receive any notification within the Tender Validity Period shall assume that their Tenders have not been accepted.

9. Cancellation of Invitation to Tender

Where there are changes in requirements after the Tender Closing Date for operational or whatever reasons, HSITPL is not bound to accept any conforming Tender and reserves the right to cancel this Invitation to Tender and/or re-issue a new invitation to tender on such other terms and conditions as HSITPL deems fit.

10. Intellectual Property Rights

By submitting the Tender, the Tenderer represents and warrants to HSITPL that none of the information or ideas in the Tender infringes the copyright, trade secrets, or intellectual property rights of any third party, and the Tenderer is deemed to have agreed to indemnify HSITPL against all costs, claims, demands, expenses and liabilities that may be incurred by HSITPL as a result of or in connection with any claim that any information or ideas provided or submitted by the

Tenderer infringes the copyright, trade secrets or intellectual property rights of any third party.

11. Offering Gratuities

- a) A Tenderer shall not, and shall procure that its directors, employees, agents involved in preparing the Tender shall not offer any financial or other advantage or benefit to any director or employee of HSITPL, or engage in any activity, practice or conduct which would be in violation of any applicable anti-bribery laws or regulations in connection with the Tender Documents and any matter contemplated herein.
- b) Tenderers are warned that offering or giving any gratuity, bonus, discount, bribe, loan or any other gift or consideration as an inducement or reward to any employee or agent of HSITPL in relation to this Invitation to Tender may constitute an offence contrary to the Prevention of Bribery Ordinance (Cap. 201), and that if any Tenderer is found to have made such an offer, HSITPL shall be at liberty to cancel his Tender or terminate the Contract and shall hold such Tenderer liable for any losses or damages which HSITPL may suffer.

12. Non-collusion

- a) The Tenderer must ensure that the Tender is developed genuinely, independently and made with the intention to accept the contract if awarded, and is prepared without any agreement, arrangement, communication, understanding, promise or undertaking with any other person (except as provided in Paragraph 3 of the Non-collusive Tendering Certificate (as defined in Clause 12 d) below)), including regarding price, Tender submission procedure or any terms of the Tender. In the event of any breach of this clause by any Tenderer, HSITPL reserves the right to invalidate the Tender submitted by that Tenderer and/or terminate the Contract entered with that Tenderer based on the Tender submitted by that Tenderer and seek damages.
- b) All anti-competitive practices are strictly prohibited and the Tenderer's attention is drawn to its obligations under the Competition Ordinance (Cap. 619) (the "**Competition Ordinance**").
- c) Bid-rigging is inherently anti-competitive and is considered serious anti-competitive conduct under the Competition Ordinance. Tenderers who engage in bid-rigging conduct may be liable for the imposition of pecuniary penalties and other sanctions under the Competition Ordinance.
- d) Upon Tender submission, the Tenderer shall submit to HSITPL a Non-Collusive Tendering Certificate (in the form set out at Tender Schedule 2) (the "**Non-collusive Tendering Certificate**") duly signed by an authorised person on the Tenderer's behalf. The Contract is to be entered into in reliance on the statements made by the Tenderer in the Non-collusive Tendering Certificate and conditional upon the effectiveness and veracity of the Non-collusive Tendering Certificate. Any breach of any of the representations, warranties and/or undertakings given in the Non-collusive Tendering Certificate not only allows HSITPL to pursue damages and other forms of redress from the Tenderer but also is capable of amounting to a criminal offence and rendering the relevant personnel of the Tenderer liable to criminal prosecution (for instance, for the offence of conspiracy to defraud and upon conviction shall be liable to imprisonment for 14 years).

- e) Notwithstanding any provisions regarding disclosure of documents and information, HSITPL may, at its discretion, report and provide documents and information regarding any suspected anti-competitive collusive conduct to the Competition Commission and/or other relevant authorities.

13. Insurance

- a) The successful Tenderer shall, for the full term of the Contract, have in place the following insurance policies at its own cost with reputable insurer(s), on terms which are satisfactory to HSITPL, in the joint names of HSITPL as the insured party, and fully comply with the laws of the Hong Kong Special Administrative Region (“**HKSAR**”):
 - i. Contractors’ all risks insurance for the sum of at least HK\$30,000,000 for any one accident and unlimited in the amount for the period of insurance; and
 - ii. Employees’ compensation insurance in the sum of not less than HK\$200,000,000 of any one event.
- b) The insurance for the works shall cover the period from the commencement date of the Contract (“**Commencement Date**”) until and extended to cover the date of expiry of the DLP (as defined in Paragraph 5.5.12 in Tender Schedule 5) and until such time as no further works as being carried out.
- c) HSITPL may from time to time require the successful Tenderer to maintain any insurance policies against other insurable risks, which reasonable costs and expenses would be reimbursed by HSITPL provided that such costs and expenses are approved by HSITPL in writing.
- d) In addition to maintaining the required insurance policies, the successful Tenderer shall hold HSITPL harmless from any loss, damage, cost, expense, liability etc. and (without prejudice to the obligations to indemnify HSITPL as stipulated in clause 9 of the PO T&C as defined in Part II below) fully indemnify HSITPL and HSITPL’s representatives for any loss, damage, cost, expense, liability etc. that may result directly or indirectly from the negligence of the successful Tenderer, its employees, agents, servants or any tiers of sub-contractors in the carrying out of its obligations under the Contract.
- e) The successful Tenderer is liable for all policy excesses and/or deductibles under the insurance policies maintained pursuant to this Clause 13.
- f) The successful Tenderer should produce satisfactory evidence to HSITPL prior to the Commencement Date showing that the insurances referred to in this Clause 13 have been affected and are in force, including but not limited to, producing a certificate of insurance. If the successful Tenderer fails upon reasonable request to produce satisfactory evidence to HSITPL or HSITPL’s representatives, HSITPL may affect and keep in force such insurance policies and pay such premium or premiums as may be necessary for that purpose, and from time to time deduct the amount so paid from any monies due or to become due to the successful Tenderer or recover such amount from the successful Tenderer. If the successful Tenderer fails to produce any such satisfactory evidence as requested by HSITPL or HSITPL’s representatives, HSITPL reserves the right to terminate the Contract.

14. Payment Schedule

Subject to the work done to the satisfaction of HSITPL, payments due under the Contract will be made as per the following payment schedule (“**Payment Schedule**”). Please note the Payment Schedule is for reference only and does not amount to any representation and warranties. Tenderers shall not rely on any information set out in the Payment Schedule.

Any deliverables by the successful Tenderer shall be reviewed and approved by HSITPL to ensure they meet HSITPL’s satisfaction level, which is at the sole and final discretion of HSITPL.

Service Item	Tentative Task Completion Date	Payment
Project Completion, User Acceptance Testing (UAT) Passed & Handover • Successful installation, mounting, and commissioning of all rack head-end units, all Meeting Rooms, CXO Executive Meeting Rooms, the Private Dining Space, the Staff Pantry, and the Gallery/Exhibition AV and Audio Infrastructure. • Execution of full end-to-end technical UAT witnessed and approved by HSITPL IT Infrastructure teams. • Completion of advanced room acoustic balancing, parametric EQ tuning, and hardware Acoustic Echo Cancellation (AEC) path calibration. • Handover of all as-built signal single-line block diagrams, wiring paths, rack elevations, uncompiled/compiled control source code, and comprehensive Operation & Maintenance (O&M) manuals. • Official written sign-off acceptance triggering the commencement of the DLP (as defined in Paragraph 5.5.12 in Tender Schedule 5), equipment warranties, and bundled software subscriptions/licenses. • Delivery of operational training sessions for HSITPL’s designated internal technical team.	15 November 2026	One-off payment of the Total Contract Amount stated in Tender Schedule 4 to be made within 30 calendar days of the successful completion of all deliverables and the submission of a valid invoice.

Optional Ad-hoc AV Infrastructure Modifications • Supply, physical deployment, structural reinforcement validation, hardware programming, and engineering alignment of extra Small Meeting Room(s) and extra CXO Executive Room(s)	As required by HSITPL	One-off payment of the amount specified for the relevant Optional Item of Tender Schedule 4, if ordered by HSITPL and completed by the successful Tenderer, to be made within 30 calendar days of the submission of an invoice upon completion of the relevant ad-hoc task based on HSITPL's instructions.
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Note:

1. HSITPL shall have the sole and absolute discretion to determine the Commencement Date of the Services.
2. The successful Tenderer shall submit invoice(s) only after completion and acceptance of the service items to the satisfaction of HSITPL.

PART II: Purchase Order Terms and Conditions

HSITPL shall issue a PO to the successful Tenderer on the terms as set out in the General Terms and Conditions for Purchase Orders ("**PO T&C**") which is available on HSITPL's website or provided separately by HSITPL in PDF file format. Tenderers must read the PO T&C carefully before submitting the Tender.

In the event that the Tenderer wishes to propose any revisions to the terms of the PO T&C, the Tenderer should set out such proposed revisions in the Technical Proposal of the Tender but HSITPL is not bound to accept any of such proposed revisions. For the avoidance of doubt, such proposed revisions shall not form part of the PO. In any event, HSITPL will not accept any proposed revisions to the PO T&C that are not submitted together with the Technical Proposal and/ or come to HSITPL's attention after the Tender Closing Date.

HSITPL reserves the right to disqualify any Tenderer that submits any proposed revisions to the PO T&C in the Price Proposal or proposes revision to the PO T&C after the Tender Closing Date.

PART III: Submission Requirements

The Tenderer is required to return a complete set of the following documents to HSITPL before the Tender Closing Date in ***separate envelopes***.

Price Proposal	Tender Schedule No.
1. Price Schedule	4

Technical Proposal	Tender Schedule No.
1. Tender Submission Information	1

2.	Non-collusive Tendering Certificate	2
3.	Form of Tender	3
4.	Requirement Specifications	5
5.	Proposed Solution for Tender	6

Number of documents required:

- a) 1 set of the “Technical Proposal” in hard copy;
- b) A universal serial bus (“**USB**”) drive with an electronic copy of the “Technical Proposal” and presentation deck without any price information in PDF format; and
- c) 1 set of the “Price Proposal”, i.e. the Price Schedule (Tender Schedule 4), in hard copy.

Tender Schedule 1: Tender Submission Information

To: Hong Kong-Shenzhen Innovation and Technology Park Limited ("HSITPL")

Dear Sir / Madam,

"Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))"

We provide the contact information below for this tender:

Representative:	
Job Title:	
Contact Phone Number:	(Office)
	(Mobile)
Contact Email:	

Tender Schedule 2: Non-collusive Tendering Certificate

To: Hong Kong-Shenzhen Innovation and Technology Park Limited (“HSITPL”)

Dear Sir / Madam,

Non-collusive Tendering Certificate for “**Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))**” (the “Contract”)

1. We, _____ of
(name(s) of the Tenderer(s))

(address(es) of the Tenderer(s))

refer to the tender for the Contract (the “**Tender**”) and our bid in relation to the Tender.

Non-collusion

2. We represent and warrant that in relation to the Tender:

- a) Our bid was developed genuinely, independently and made with the intention to accept the Contract if awarded;
- b) Our bid was not prepared with any agreement, arrangement, communication, understanding, promise or undertaking with any person (including any other tenderer or competitor) regarding:
 - (i) prices;
 - (ii) methods, factors or formulas used to calculate prices;
 - (iii) an intention or decision to submit, or not submit, a bid;
 - (iv) an intention or decision to withdraw a bid;
 - (v) the submission of a bid that does not conform with the requirements of the Tender;
 - (vi) the quality, quantity, specifications or delivery particulars of the products or services to which the Tender relates; and
 - (vii) the terms of the bid,

and we undertake that we will not, prior to the award of the Contract, enter into or engage in

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any of the foregoing.

3. Paragraph 2(b) of this certificate shall not apply to agreements, arrangements, communications, understandings, promises or undertakings with:
- a) HSITPL;
 - b) a joint venture partner, where joint venture arrangements relevant to the bid exist and which are notified to HSITPL;
 - c) consultants or sub-contractors, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular consultancy arrangement or sub-contract;
 - d) professional advisers, provided that the communications are held in strict confidence and limited to the information required for the adviser to render their professional advice in relation to the Tender;
 - e) insurers or brokers for the purpose of obtaining an insurance quote, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular insurance arrangement; and
 - f) banks for the purpose of obtaining financing for the Contract, provided that the communications are held in strict confidence and limited to the information required to facilitate that financing.

Disclosure of sub-contracting arrangement and beneficial ownership

4. We represent and warrant that there is no intended sub-contracting arrangement relating to the Tender, including those which are to be entered into after the Contract is awarded.

OR*

We represent and warrant that the following sub-contracting arrangements are all the intended sub-contracting arrangements relating to the Tender, including those which are to be entered into after the Contract is awarded:

[Please set out the details of such sub-contracting arrangements here. Please use supplemental sheets where appropriate.]

We understand that we are required to continue to disclose any of such sub-contracting arrangements to HSITPL as and when they arise.

5. We represent and warrant that the following is our beneficial ownership:
(For a company other than a listed company or exempted company¹)
[Please disclose the significant controllers register here, as defined in the Companies Ordinance, Cap.

¹ An exempted company is one which is not required to keep a register of its significant controllers (see further sections 653A (definition of "applicable company") and 653H of the Companies Ordinance).

622. Please use supplemental sheets where appropriate.]

OR*

(For a sole proprietorship or partnership)

[Please disclose details of beneficial owner(s) here, including their name and the nature of their control over the firm. Please use supplemental sheets where appropriate.]

OR*

(For listed company)

We are a listed company in Hong Kong and our corporate ownership has already been disclosed in the public domain.

6. We understand that HSITPL may request us to disclose further details regarding our shareholders or parent companies, or any other related, associated or controlling entities, to HSITPL. We agree to disclose such details to HSITPL if so requested, subject to such requests being reasonable in the circumstances.

Consequences of breach or non-compliance

7. We understand that in the event of any breach or non-compliance with any representations, warranties and/or undertakings in this certificate, HSITPL may, at its discretion, invalidate our bid, exclude us in future tenders, pursue damages or other forms of redress from us (including but not limited to damages for delay, costs and expenses of re-tendering and other costs incurred), and/or (in the event that we are awarded the Contract) terminate the Contract.
8. Under the Competition Ordinance, bid-rigging is serious anti-competitive conduct. Further, any breach of any of the representations, warranties and/or undertakings given in this certificate is capable of amounting to a criminal offence and rendering our relevant personnel liable to criminal prosecution (for instance, for the offence of conspiracy to defraud and upon conviction shall be liable to imprisonment for 14 years). We understand that, notwithstanding any provisions regarding disclosure of documents and information, HSITPL may, at its discretion, report all suspected instances of anti-competitive conduct to the Competition Commission (the “**Commission**”) and/or other relevant authorities and provide the Commission and/or other relevant authorities with any relevant information, including but not limited to information on our bid and our personal or corporate information.

For and on behalf of: _____
(Company Name)

Signature with Company Chop: _____
(Authorized Signature)

Name & Position: _____

Date: _____

Additional signature blocks will need to be used where the Tenderer is comprised of multiple parties.

Tender Schedule 3: Form of Tender

To: Hong Kong-Shenzhen Innovation and Technology Park Limited (“HSITPL”)

Dear Sir / Madam,

“Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))”

1. We undertake that if our Tender is accepted, to commence the Services and complete and deliver the Services within the times stated in the Tender Documents.
2. We agree that this Tender shall be valid for a period of **three (3)** months from the Tender Closing Date specified in the Tender Documents. We agree that, should HSITPL so request in writing, we shall abide by this Invitation to Tender for a further **three (3)** months, and the Tender may be accepted by HSITPL at any time before the expiration of this extended period. If an award cannot be made within the Tender Validity Period (or extended Tender Validity Period), a request may be made to some or all of the Tenderers to further extend the Tender Validity Period, at which time they may elect to extend or withdraw their Tender or may agree a further extended Tender Validity Period with HSITPL in writing.
3. We confirm that this Tender has taken into consideration all tender addenda issued to us (if any) prior to the date hereof.
4. Unless and until a purchase order is issued by HSITPL to us, this Tender, together with your written acceptance thereof, shall constitute a binding agreement between us. The Tender should always form part of the binding agreement between HSITPL and us, while the order of precedence will be lower than the purchase order. We undertake to abide by the PO T&C enclosed with the Tender Documents in the event that our proposed revisions (if any) the PO T&C are not accepted by HSITPL.
5. We understand and agree that HSITPL is not bound to accept the lowest or any tender you may receive.
6. We understand and agree that HSITPL is not responsible for any cost or expense incurred for and in connection with preparing the Tender and/or any presentation or demonstration given by us.
7. We confirm that we are not subject to any actual or potential conflict of interest save to the extent already expressly disclosed by us to HSITPL and we undertake to notify HSITPL immediately should any conflict arise.
8. We certify that, to the best of our knowledge and belief, all information and documents provided in and submitted with the Technical Proposal are true, accurate, and complete. Further, we understand and agree that if any information or document provided in or submitted with the Technical Proposal is found to be untrue, inaccurate, incomplete or misleading, HSITPL may, without limiting HSITPL’s rights and remedies therein or at law, invalidate, reject and/or disqualify our Tender.

For and on behalf of: _____
(Company Name)

Signature with Company Chop: _____
(Authorized Signature)

Name & Position: _____

Date: _____

Additional signature blocks will need to be used where the Tenderer is comprised of multiple parties.

Tender Schedule 4: Price Schedule

To: Hong Kong-Shenzhen Innovation and Technology Park Limited (“HSITPL”)

Dear Sir / Madam,

“Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))”

1. The quotation shall be valid for **three (3)** months from the Tender Closing Date specified in the Tender Documents. We agree that, should HSITPL so request in writing, we shall abide by the Tender Documents for a further **three (3)** months, and the Tender may be accepted by HSITPL at any time before the expiration of this extended period.
2. The price indicated in the tables below covers all the items specified in the Requirement Specifications of the Tender Documents.
3. HSITPL reserves the right to modify, amend or revise any Requirement Specifications and/or terms and conditions stated in the Tender Documents.
4. The Total Contract Amount is inclusive of all costs or charges which we will incur in the provision of the goods or services, including but not limited to any application and/or software fees required to operate the Services.
5. We acknowledge that only the Total Contract Amount in this Tender Schedule 4 will be assessed for the purpose of price score calculation for this Tender, whereas HSITPL will not consider any pricing information in “Optional Items” in this Tender Schedule 4 for the purpose of assessing the Tender.
6. Unless otherwise terminated, the Contract for our provision of the Services to HSITPL shall remain in force from the Commencement Date until the last day of the DLP (as defined in Paragraph 5.5.12 in Tender Schedule 5) (“**Service Period**”).
7. We acknowledge that the price information provided in this Tender Schedule 4 shall remain fixed and binding throughout the Service Period.
8. We acknowledge that the quantity of tokens stated below for Optional Items are provided for quotation purposes only. HSITPL does not guarantee the order of any or all of such items. HSITPL has the sole discretion to determine the actual quantity of items to be ordered.
9. We acknowledge that (i) HSITPL will not accept any proposed revisions to the PO T&C that are not submitted together with the Technical Proposal and/or come to HSITPL’s attention after the Tender Closing Date and (ii) HSITPL is not bound to accept any of such proposed revisions.
10. We acknowledge that HSITPL reserves the right to disqualify any Tenderer that submits any proposed revisions to the PO T&C in the Price Proposal or proposes revision to the PO T&C after the Tender Closing Date.

Items		Price (HK\$)			
Item	Description	Unit	Quantity	Unit Price	Amount
1	Central Head-End AVoIP Video Matrix & Distribution Control System	Set	1		
	Centralized distributed AVoIP hardware master management controller modules configured with				

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	zero-latency video routing matrix logic. Includes a 19-inch high-density rack-mountable hardware chassis supporting up to 15 modular interface units/encoders, and advanced multi-program central control engines featuring physically isolated AV control subnets, dual LAN management control loops, and dynamic EDID handshake optimization frameworks. Serves as the global head-end for all deployment rooms.				
2	Core Enterprise-Grade AV Network Switching Infrastructure (Managed PoE+ Stacking Mode) Layer 2/3/4 fully managed 52-port corporate Gigabit switches optimized for high-bandwidth real-time AV streaming data packets. Configured in a redundant stacking topology over high-speed 10G interfaces, operating as a dedicated, secure standalone AV network entirely decoupled from the corporate LAN. Features factory-preconfigured enterprise multicast routing architectures (including Internet Group Management Protocol (IGMP) Snooping, IGMP Querier, and IGMP Plus) alongside a minimum base PoE+ power delivery budget of 480W per switch node.	Set	1		
3	Multi-Core Centralized Digital Audio Processing Network (DSP System with Hardware AEC) High-performance centralized digital signal processors (DSP) running uncompressed multi-channel Dante and AES67 audio networking streams. Equipped with minimum 16 discrete	Set	1		

	channels of hardware Acoustic Echo Cancellation (AEC) per processor node to avoid echo, feedback, and audio anomalies during simultaneous unified communications meetings. Includes automated digital gain-staging, multi-band parametric equalization algorithms, and adaptive noise suppression matrices.				
4	High-Density Wireless Microphone Distribution Subsystem & Active Antenna Network Multi-channel digital wireless receiver mainframes supporting scalable channel licenses up to 24 active microphone loops. Interconnected with an active RF antenna distribution subsystem consisting of wall/ceiling-mounted multi-zone directional antennas (470–698 MHz operational spectrum), in-line RF signal amplifiers (+10dB/+3dB selectable gain steps) to offset long-run coaxial cable attenuation, bias-T coaxial power injection hardware modules, and passive 2-way RF splitters/combiners.	Set	1		
5	Extra Small and Small Meeting Room Collaborative AV System Package Complete brand-agnostic audio-visual package for small collaboration zones. Encompasses a 43-inch UHD displays enterprise commercial backlit display monitor rated for 16/7 or 24/7 continuous operation, a heavy-duty ultra-low-profile articulating swivel mount collapsing to ≤30mm, a compact all-in-one smart video conferencing camera bar (UHD displays resolution, motorized	Set	6		

	pan/tilt, secondary computer-vision AI lens for real-time auto-framing, built-in speakers, and beamforming microphones), an automated hardware USB host switcher module, , and an enterprise hardware wireless presentation/BYOM hub supporting up to 4 simultaneous split-screen wireless streams. Each meeting room table must be equipped with an enterprise-grade / commercial-grade table-integrated USB Power Delivery (USB-PD 3.0/3.1) charging hub/power module. The charging subsystem must feature at least two (2) independent USB-C power delivery ports capable of delivering a simultaneous minimum output of 65W per port. The subsystem must include two (2) high-durability, commercial-grade USB-C cables rated for 100W /5A power transmission. All charging cables must be neatly dressed, strain-relieved, and routed through table cable cubbies, pop-up enclosures, or weighted under-table cable retractor mechanisms to present a clean, clutter-free, and accessible tabletop interface for executive users.				
6	CXO Executive / Medium Size Meeting Room Collaborative AV System Package Premium corporate audio-visual and video conferencing package tailored for executive spaces. Comprises a high-end 65-inch UHD displays professional commercial backlit display monitor equipped with an integrated TV tuner, a heavy-duty ultra-low-profile articulating swivel	Set	8		

	mount collapsing to ≤30mm, a flagship executive all-in-one video bar system (high-magnification primary optical/digital camera, secondary tracking lens, premium integrated studio-grade stereo speakers, and an advanced long-range beamforming array supporting native room appliance and USB BYOD modes), an automated hardware USB host peripheral switcher, and a premium enterprise wireless presentation and BYOM collaboration hub kit. Each meeting room table must be equipped with an enterprise-grade / commercial-grade table-integrated USB Power Delivery (USB-PD 3.0/3.1) charging hub/power module. The charging subsystem must feature at least two (2) independent USB-C power delivery ports capable of delivering a simultaneous minimum output of 65W per port. The subsystem must include two (2) high-durability, commercial-grade USB-C cables rated for 100W /5A power transmission. All charging cables must be neatly dressed, strain-relieved, and routed through table cable cubbies, pop-up enclosures, or weighted under-table cable retractor mechanisms to present a clean, clutter-free, and accessible tabletop interface for executive users.				
7	Boardroom Collaborative AV System Package Flagship executive boardroom setup. Includes a large-format fine-pitch display (minimum total equivalent to 130", ultra-high contrast, non-glare), architectural multi-lens pan tilt and zoom (ptz) tracking cameras (front and rear capture), multi-zone adaptive ceiling microphone arrays, digital wireless table gooseneck microphone array, automated host switchers, table single-cable USB-C	Set	1		

	BYOD dock with four (4) 65W USB-PD table charging module, wireless presentation/BYOM hub, and networked tabletop touch-screen control panels.				
8	Large Meeting Room Collaborative AV System Package Complete high-end setup mirroring boardroom core components: UHD professional commercial display, advanced pan tilt and zoom (ptz) tracking camera, multi-zone ceiling microphone array, automated host switcher, table USB-C BYOD dock with dual 65W USB-PD table charger, matching wireless BYOM presentation kit, and tabletop touch control panel. Designed to seamlessly link with the Boardroom.	Set	1		
9	Room Combining Integration Logic (Boardroom & Large Meeting Room) Specialized engineering, logic programming, and hardware interface configuration enabling automated "Combine" and "Separate" operational modes between the Boardroom and Large Meeting Room. Integrates DSP audio pooling, multi-camera tracking handover, and unified touch UI configurations.	Set	1		
10	Private Dining Space Integrated AV System Architecture High-performance multi-functional AV setup for the private dining space. Includes dual UHD professional displays mounted on micro-adjustment pop-out videowall brackets, dual-lens AI tracking camera bar, motorized retractable architectural ceiling camera, multi-zone ceiling microphone array, high-	Set	1		

	fidelity two-way coaxial ceiling loudspeakers with Class-D amplifier, wall input plates, and dedicated tabletop/wall touchscreen control console.				
11	Room Booking Touch Screen & Availability System Enterprise wall-mounted doorway room scheduling system package covering all meeting rooms. Includes a Power-over-Ethernet (PoE) room scheduling touch panel in a smooth white finish, equipped with a top-mounted or integrated multi-color room availability light indicator. Powered and networked via a single Cat6A PoE connection (IEEE 802.3af/at standard compliant). Provided under a perpetual buy-out hardware model requiring zero mandatory recurring monthly or annual software or licensing subscription fees. Supports direct native synchronization with Microsoft Outlook / Exchange, native Microsoft Teams Panel runtime support, and open compatibility with third-party room scheduling platforms and applications.	Set	16		
12	Digital Tender Box Info Display System Lobby digital tender box info viewing monitor package. Comprises a commercial display monitor with front-ear VESA mounting brackets for flush enclosure integration, localized media player module, and 1-year cloud content management system (CMS) software subscription enabling remote backend template editing, real-time tender status publishing, and automated document scheduling over secure web console.	Set	3		

13	Staff Pantry Digital Signage & Media Display System Dedicated communications framework for the staff pantry area. Includes a high-brightness commercial presentation display monitor equipped with an audio line-out, a low-profile articulate wall-mount arm, a high-efficiency 6.5-inch two-way pendant ceiling speaker cluster for open-ceiling environments, localized table/wall HDMI presentation input connection ports.	Set	1		
14	Staff Pantry Media Display System Includes a high-brightness display, low-profile wall mount, 6.5" two-way pendant ceiling speakers, Class-D amplifier, localized HDMI presentation plate.	Set	1		
15	Supply, Installation, and Commissioning of Gallery Sound System Comprehensive open-ceiling audio distribution and control system for the Gallery/Exhibition area.	Set	1		
16	Design, Engineering Programming, Implementation & Full-Time On-Site Project Manager (PM) Services Provision of full professional services, including detailed logical/physical schematic drawing preparation, gain-staging audio optimization profiles, custom touch-panel user interface creation, and centralized system control code execution. Includes the mandatory assignment of a dedicated, certified full-time Project Manager (PM) positioned exclusively on-site at Building 1 of HSITP to handle spatial engineering milestones, coordinate structural backing validation, and direct	Lot	1		

	construction trades.				
17	System Commissioning, Testing, Acoustic Calibration, UAT and Handover Documentation Technical field engineering services comprising complete load stress tracking, end-to-end signal path validation, localized parametric equalizer (EQ) fine-tuning, noise-floor profiling, and AEC reference path verification witnessed by HSITPL's internal team. Encompasses full technical handover documentation, including uncompiled/compiled control source code, IP matrix layouts, and operational as-built guidelines.	Lot	1		
18	Supply, Installation, and Setup of 86-inch Interactive Digital Whiteboards with Mobile Wheel Stands	Set	2		
Total Contract Amount:					

Optional Items		Price (HK\$)			
Item	Description	Unit	Quantity	Unit Price	Amount
1	Supply, Installation, Control Programming and Testing of an Extra Small Meeting Room AV Package	Set	1		
2	Supply, Installation, Control Programming and Testing of an Extra CXO Executive Meeting Room AV Package	Set	1		
3	Additional Room Booking Display Package	Set	1		
4	Additional Tender Box Display Package	Set	1		
5	Supply, Installation, and Setup of 86-inch Interactive Digital Whiteboards with Mobile Wheel Stands	Set	1		

6	Supply, Installation, and Setup of 75-inch Interactive Digital Whiteboards with Mobile Wheel Stands	Set	1		
7	Supply, Installation, and Setup of 65-inch Interactive Digital Whiteboards with Mobile Wheel Stands	Set	1		

We offer to provide the goods and/or services to HSITPL at the prices quoted above and in accordance with the Requirement Specifications and the terms and conditions stated in the Tender Documents. Acceptance of this offer shall be evidenced by the issuance of a purchase order by HSITPL.

 Authorised Signature (with company chop)

Name & Position: _____

Company Name: _____

Date: _____

Tender Schedule 5: Requirement Specifications

To: Hong Kong-Shenzhen Innovation and Technology Park Limited (“HSITPL”)

“Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))”

The scope and specific requirements of the goods/services which the Tenderer should provide are listed below.

5.1 Statement of Purpose

HSITPL hereby invites qualified and experienced tenderers to submit for supply, delivery, installation, and commissioning of standard meeting room audio-visual systems, doorway room booking systems, and digital tender box systems to be executed across the head office (“**Head Office**”) footprint located at 10/F, Building 1, HSITP, Lok Ma Chau Loop, Hong Kong.

5.2 About HSITP

HSITPL, a wholly owned subsidiary of Hong Kong Science and Technology Parks Corporation, is vested with the responsibility to develop, operate, maintain, and manage HSITP.

HSITP envisions to serve as the world’s knowledge hub and innovation & technology (“**I&T**”) centre, converging enterprises, research & development (“**R&D**”) institutions and higher education institutions from local, Mainland and overseas, which can connect upstream and midstream research to downstream market, further enhancing collaboration among industry, academic and research sectors.

HSITP focuses on six I&T pillar industries including life and health technology, artificial intelligence and data science, new materials, new energy, robotics and microelectronics.

The Park covers an area of approximately 87 hectares and the development is divided into two phases. The estimated total floor area of the first phase will be approximately 1 million square metres, which will provide R&D (Wet Lab / Advanced Manufacturing) buildings, Dry Lab / Office buildings, Research, Academic and Industry buildings, Talent Accommodation, Visitor Lodges, Commercial and Ancillary facilities, etc. Apart from Batch 1, the remaining land in the first phase of the Park will be developed through enterprises investment, aiming to enhance the speed and quantity of project development by leveraging market forces to build high-quality research and industrial infrastructure.

Phase 1 will be developed by three batches, i.e., Batch 1, Batch 2 and Batch 3. The first development batch, Batch 1, has been further sub-divided into Batch 1A, Building 1, Batch 1B and Batch 1C. Batch 1 is being developed by HSITPL which consists of eight buildings with a total gross floor area of approximately 116,000 square metres. Batch 1A consists of three buildings: Buildings 8 & 9 (wet laboratory enabled) and Building 11 (Talent Accommodation).

5.3 The Brief

HSITPL seeks a highly experienced and certified AV and UC master systems integrator to design, supply and install AV systems, doorway room booking systems, and digital tender box systems.

The successful Tenderer shall provide all specialized engineering labor, equipment, hardware licenses, and certified room control subscriptions required for the full implementation, precise acoustic room calibration, and comprehensive manufacturer-backed protection of the central head-end AV rack grid, high-fidelity networked digital signal processing (DSP) engines, advanced dual-lens AI video tracking ecosystems, and unified wired/wireless Bring Your Own Meeting (BYOM) connection nodes across the designated CXO executive rooms, standard meeting rooms, and staff pantry footprint.

5.4 Purposes of Services

The objective of the Tender is to engage a qualified enterprise-grade AV and UC master systems integrator to deliver the following core engineering, hardware programming, space calibration, and post-handover optimization services over the project implementation and baseline validation period:

- I. **Core Audio-Visual Infrastructure & Media Routing Objective:** Provide complete, dedicated on-site project management, cross-party construction site coordination, hardware procurement, and high-fidelity schematic block/single-line structural layout designs. This engineering pipeline must deliver a highly resilient, centralized distributed AVoIP video switching matrix and a high-fidelity uncompressed digital audio network across all specified zones (including six (6) Small Meeting Rooms, eight (8) Medium/CXO Executive Meeting Rooms, the Private Dining room, the large meeting room, boardroom and the Staff Pantry area), relevant floor plans may be made available to the Tenderers upon request.
- II. **Advanced Room Combining Architecture:** Establish flawless integration between the Boardroom and the Large Meeting Room, ensuring the AV systems operate independently in "Separate Mode" and function as one cohesive environment in "Combine Mode" (sharing DSP pooling, AVoIP matrix routing, multi-camera tracking handover, and unified UI control).
- III. **UC, BYOM & Table USB-PD Power Agility:** Deliver native UC appliance configurations alongside zero-driver wired/wireless BYOM presentation hubs and unthrottled dual 65W (130W total) USB-C laptop fast-charging modules at all meeting tables.
- IV. **Scope of Unified Communications & Collaborative Space Deployment:** Deliver comprehensive multi-room deployment, automated peripheral bridging, and optimized room appliance configurations supporting native enterprise software room environments. The space setups must ensure seamless, intuitive daily video conferencing, content sharing, and local multi-source presentation workflows for all corporate staff and executive attendees.
- V. **Wired BYOD and Wireless BYOM Agility Framework:** Establish zero-driver wired table USB-C connection bridge docks working in tandem with smart hardware-button wireless presentation hubs. Connection profiles must support bidirectional Bring Your Own Meeting (BYOM) wireless driver bridging, allowing guest users to instantly access in-room tracking cameras, soundbars, and microphone arrays from personal laptops over-the-air without local application obstacles or configuration bottlenecks.
- VI. **Logical AV Network Isolation & Dedicated Control Subnet Hardening:** Implement rigid network segmentation policies to isolate all heavy real-time AVoIP multicast streams and sensitive system

telemetry onto physically isolated, dedicated AV hardware subnets. Direct lateral communication or data spills between these audio-visual grids and the main client corporate enterprise LAN must be completely blocked, forcing all administrative control traffic through secure dual-LAN ports to avoid corporate core bandwidth saturation.

- VII. **Fault Tolerance, Network Redundancy & System Cache Stability:** Eliminate single points of hardware failure across the AV distribution core by enforcing stacked network switch topologies equipped with redundant, hot-swappable dual power supplies connected to independent electrical utility feeds. Central control processors must run automated real-time configuration mirror caches to prevent operational state data loss during power utility events.
- VIII. **Acoustic Calibration, UAT Validation & Sign-Off Linked Warranties:** Execute 100% systematic end-to-end signal path verification, multi-source load-stress switching analysis, localized multi-band parametric equalizer (EQ) tuning, and multi-path hardware Acoustic Echo Cancellation (AEC) path calibration in the presence of the HSITPL IT Infrastructure team to verify perfect spatial room acoustics. Handover all final as-built wiring schematics, room configuration single-lines, and operation manuals to trigger the official written sign-off acceptance, which shall serve as the sole contractual start date for the DLP (as defined in Paragraph 5.5.12 below), comprehensive component replacement warranties, and bundled software licenses.

5.5 Scope of Services / Deliverables

The successful Tenderer shall take immediate operational ownership, deployment responsibility, and technical administration of the integrated audio-visual and unified video conferencing systems infrastructure across the Building 1 10/F Head Office footprint. The scope of services and project deliverables is structured across the following core engineering, management, and compliance auditing categories:

5.5.1 Head-End Central Core AV Infrastructure

The successful Tenderer shall supply, install, configure, rack-mount, and program the core head-end equipment within the designated central server room cabinets. This central core network functions as the global distribution master for all rooms and must meet the following technical specifications:

Central Distributed Audio-Video over IP (AVoIP) Controller Management Core

- I. **Operating Framework:** Dual-redundancy hardware management controllers dedicated to automated endpoint discovery, web-based matrix video routing, and secure API system telemetry monitoring.
- II. **Physical Architecture:** Mounted inside a 19-inch 15-slot high-density rack chassis equipped with vertical space-saving brackets, rear cable pathways, and modular thermal ventilation plates.

Networked Digital Audio Signal Processing (DSP) Matrix

- I. **Processing Capacity:** Sized at four (4) discrete hardware processors providing a minimum baseline of 16 channels of uncompressed networked digital audio over Dante and AES67 standards.
- II. **Acoustic Processing Engine:** Onboard hardware processing units executing automated multi-channel Acoustic Echo Cancellation (AEC), cross-room matrix audio mixing, parametric equalization, filtering, delay line tracking, and independent dynamics adjustments.

High-Density Wireless Microphone RF Antenna Distribution Core

- I. **Receiver Scale Matrix:** Hardware receivers supporting multi-channel digital wireless operations with expansion license slots activated to manage up to 24 concurrent active wireless transmission loops across multiple zones.
- II. **Active Antenna Layout Framework:** Deployed as an active RF distribution array composed of six (6) directional wall/ceiling antennas operating over the 470–698 MHz frequency spectrum.

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Includes six (6) in-line RF antenna signal amplifiers (+10dB/+3dB selectable gain steps) to completely offset long-run coaxial cable attenuation, six (6) bias-T coaxial DC electrical power inject modules, and four (4) passive 2-way antenna splitters/combiners.

Central Control Automation Engines & AV-Optimized Managed Switches

- I. **Next-Gen Central Control Processors:** Deployed as an active cluster of two (2) multi-core central control engines equipped with a minimum of 2GB RAM and 8GB Flash storage. Must feature isolated AV control subnet ports supporting hardware interface loops for RS-232, IR, digital input triggers, and low-voltage relay closures.
- II. **Managed AV Network Core Switches:** Deployed as three (3) stacked 52-port Layer 2/3 fully managed switches. Must feature 48x 1G RJ45 Ethernet ports supporting IEEE 802.3at PoE+ (minimum baseline PoE power budget of 480W per switch chassis), alongside 2x 10GBASE-T and 2x 10G SFP+ optical uplink ports. Factory pre-configured for stable real-time AV multicast routing utilizing automated IGMP Snooping, IGMP Querier, and IGMP Plus parameters.

5.5.2 Small Meeting Room AV Ecosystem (6 Rooms Total)

The successful Tenderer shall deploy six (6) identical, highly unified corporate collaborative AV system environments across the small meeting rooms on the Building 1 10/F layout blueprint. Every room must meet the following component minimums:

Display Monitors & Structural Articulating Mount Assemblies

- I. **Enterprise Commercial Display:** One (1) 43-inch UHD displays enterprise-grade commercial display monitor featuring a native resolution of 3840 x 2160. Must have a minimum brightness rating of 320–350 cd/m², a 16:9 aspect ratio, a 16/7 commercial usage rating, an integrated smart OS, centralized content management system, and a built-in 2x 10W speaker layout. Input interfaces must include 3x HDMI, 2x USB, RJ45 LAN, Wi-Fi, and RS-232C control ports.
- II. **Ultra-Low-Profile Wall Mount:** Industrial-grade heavy-duty articulating steel swivel mount providing precise fluid alignment. When completely retracted, the rear display chassis and cable layout must sit ultra-thin at $\leq 30\text{mm}$ from the finished wall.

Unified Video Conferencing & Local Presentation Elements

- I. **Compact All-In-One Enterprise Video Bar:** One (1) integrated smart audio-visual video bar supporting native dual booting: Appliance Mode for unified enterprise communication suites and USB BYOD Mode. Primary camera must capture UHD with motorized pan/tilt (Pan: $\pm 25^\circ$, Tilt: $\pm 15^\circ$) and a 120° diagonal FoV. Secondary computer-vision AI lens executes real-time auto-framing, group participant counting, and speaker tracking to achieve a total coverage tracking span of 163°. Audio elements must feature three (3) built-in stereo speakers (output up to 99 dB SPL) and six (6) beamforming MEMS microphones providing a continuous pickup radius with hardware echo cancellation.
- II. **Wired Table BYOD Connection Docks:** Extended single-cable table USB-C connection hubs aggregating high-bandwidth AV streaming video, camera capturing, microphonic lines, and laptop charging power over a single physical line.
- III. **Automated Host Switcher Module:** Hardware USB 3.0 auto-switching module executing driverless peripheral hot-plug detection to instantly route room assets (camera, mic, soundbar) between the native in-room computer and an active table guest laptop.
- IV. **Wireless Presentation Hub & Bring Your Own Meeting (BYOM) Kit:** Enterprise hardware wireless presentation receiver with USB adapter buttons. Supports up to UHD displays outputs from Windows/macOS/iOS/Android via native protocols (AirPlay, Miracast, Google Cast) with support for up to 4 simultaneous split-screen sources. Features active wireless BYOM driver bridging to connect room video and audio peripherals over-the-air to guest communication software.

High-Power Dual Laptop USB-C Power Delivery (USB-PD) Charging Subsystem:

- I. **Power Delivery Architecture:** Each meeting room table must be equipped with an enterprise-grade / commercial-grade table-integrated USB Power Delivery (USB-PD 3.0/3.1) charging hub/power module.
- II. **Simultaneous Dual 65W Output:** The charging subsystem must feature at least two (2) independent USB-C power delivery ports capable of delivering a simultaneous minimum output of 65W per port (total aggregate charging power > 130W). Power distribution must be fully isolated so that connecting a second laptop does not renegotiate, drop, or throttle power on the primary port below 65W.
- III. **Cable Management & Tabletop Integration:**
 - a. The subsystem must include two (2) high-durability, commercial-grade USB-C cables rated for 100W/5A power transmission with integrated E-Marker chips.
 - b. All charging cables must be neatly dressed, strain-relieved, and routed through table cable cubbies, pop-up enclosures, or weighted under-table cable retractor mechanisms to present a clean, clutter-free, and accessible tabletop interface for executive users.
- IV. Cable lengths must provide sufficient slack (>1.2 meters above table surface) to comfortably reach laptops placed anywhere around the primary meeting table zones.

5.5.3 Medium / VIP / CXO Executive Meeting Room AV Architecture (8 Rooms Total)

The successful Tenderer shall install and calibrate eight (8) high-end, identical executive-grade collaborative AV and smart video conferencing system setups within the primary CXO boardroom boundaries. Each space layout must incorporate the following technology layers:

Flagship Displays & Industrial Swivel Bracing

- I. **Executive Commercial Display:** One (1) premium 65-inch UHD professional commercial backlit display monitor featuring a native resolution of 3840 x 2160. Must have a minimum brightness rating of 350 cd/m², wide executive viewing angles, integrated commercial content protection technologies, an automated sleep/wake power state scheduler, and a central network telemetry controller. Inputs must include 3x HDMI, 2x USB, and discrete RS-232C engineering line connections.
- II. **Industrial Articulating Mount:** Industrial-strength heavy-duty display articulating wall mount, featuring fluid multi-axis alignment, collapsing to an ultra-thin 30mm or less from the wall when retracted.

Flagship All-In-One Executive Video Bars & Switching Interfaces

- I. **Flagship Video Bar System:** Flagship integrated communication video bar system. Primary lens utilizes high-magnification optical and digital pan tilt and zoom (ptz) capabilities capturing crisp UHD video with motorized pan/tilt tracking and low-light optimization. Secondary computer-vision AI Viewfinder lens continuously tracks spatial group changes, auto-framing participants and analyzing real-time seating density. Audio elements feature long-range studio stereo speaker structures and an advanced beamforming array utilizing acoustic fences and advanced background noise suppression algorithms. Dual-boot architecture supports native room appliance and USB BYOD configurations.
- II. **Peripheral Routing Hardware:** Highly automated hardware USB 3.0 auto-switcher interfaces, table-integrated extended single-cable USB-C BYOD bridge kits with advanced power delivery, and premium enterprise wireless presentation/BYOM collaboration hubs supporting UHD compositing, native casting protocols, and real-time remote cloud scheduling management.

High-Power Dual Laptop USB-C Power Delivery (USB-PD) Charging Subsystem:

- I. **Power Delivery Architecture:** Each meeting room table must be equipped with an enterprise-grade / commercial-grade table-integrated USB Power Delivery (USB-PD 3.0/3.1) charging hub/power module.
- II. **Simultaneous Dual 65W Output:** The charging subsystem must feature at least two (2) independent USB-C power delivery ports capable of delivering a simultaneous minimum output of 65W per port (total aggregate charging power > 130W). Power distribution must be fully isolated so that connecting a second laptop does not renegotiate, drop, or throttle power on the primary port below 65W.
- III. **Cable Management & Tabletop Integration:**
 - a. The subsystem must include two (2) high-durability, commercial-grade USB-C cables rated for 100W/5A power transmission with integrated E-Marker chips.
 - b. All charging cables must be neatly dressed, strain-relieved, and routed through table cable cubbies, pop-up enclosures, or weighted under-table cable retractor mechanisms to present a clean, clutter-free, and accessible tabletop interface for executive users.
- IV. Cable lengths must provide sufficient slack (>1.2 meters above table surface) to comfortably reach laptops placed anywhere around the primary meeting table zones.

5.5.4 Executive Boardroom Collaborative AV System Architecture (1 Room)

- **Display Network:** Dual large-format fine-pitch Chip-on-Board (COB) LED / UHD commercial display network providing ultra-wide viewing angles, high contrast, and high brightness resilience against ambient lighting.
- **Camera Tracking Ecosystem:** Architectural motorized Pan-Tilt-Zoom (PTZ) cameras configured for multi-angle capturing, presenter tracking, and automated acoustic-triggered active speaker tracking across the boardroom layout.
- **Audio Capture & DSP Infrastructure:** Multi-zone adaptive acoustic ceiling microphone arrays for invisible, zero-clutter pickup, supplemented by a multi-channel digital wireless microphone system (tabletop gooseneck microphone array, wireless handhelds, and lavalier bodypacks). Directly routed into the head-end Dante DSP core with continuous multi-path Acoustic Echo Cancellation (AEC).
- **UC, BYOD/BYOM & Power Distribution:** Automated hardware USB host switchers, table-integrated single-cable USB-C BYOD bridge docks, enterprise wireless presentation/BYOM hubs, and a quad-port 65W USB-PD (260W total aggregate) laptop fast-charging module built into the boardroom table.
- **Control Interface:** Dual networked touch control interfaces—one 10-inch tabletop touch UI and one local wall-mounted touch UI—running custom institutional HTML5 graphical user interfaces.

5.5.5 Large Meeting Room & Automated Boardroom Combining Logic

- **Large Meeting Room Standalone Setup:** Designed to mirror the premium capabilities of the Executive Boardroom. Features a high-end commercial 4K UHD display, architectural motorized pan tilt and zoom (ptz) tracking camera, multi-zone adaptive ceiling microphone array, digital wireless microphone system, automated USB host switcher, table single-cable USB-C BYOD dock with dual 65W USB-PD table charging, wireless presentation/BYOM kit, and tabletop/wall touch control panels.
- **Automated Room Combining Integration Logic:** Advanced engineering programming enabling seamless "Combine Mode" and "Separate Mode" operations between the Boardroom and

Large Meeting Room:

- *DSP Audio Pooling*: Dante/AES67 DSP matrix dynamically pools microphone channels and speaker zones across both spaces into a single unified acoustic domain with active AEC and automated gain staging.
- *AVoIP Matrix Video Routing*: Zero-latency video matrix routes multi-source video feeds across all display surfaces in both rooms simultaneously.
- *Multi-Camera Tracking Handover*: Tracking logic transfers pan tilt and zoom (ptz) camera handover and speaker tracking across the combined spatial footprint based on active speaker position.
- *Unified Touch UI Sync*: Touch control panels automatically synchronize graphical user interfaces to reflect combined room controls, volume levels, and source routing options.

5.5.6 Modular Daily Meeting / VIP Private Dining AV System Architecture (2 Rooms Combine)

- **Dual-Purpose Space Design**: Two (2) discrete spaces engineered for daily standalone meeting and collaboration use that can seamlessly combine into one (1) large VIP Private Dining and Executive Banquet Space.
- **Display Array & Mounting**: High-performance commercial 4K UHD professional displays mounted on heavy-duty micro-adjustment pop-out videowall brackets for flush architectural finish and dual-screen or combined viewing.
- **Dual Camera Tracking Ecosystem**: Architectural motorized pan tilt and zoom (ptz) tracking cameras paired with secondary motorized retractable architectural ceiling cameras that extend or retract dynamically based on room usage (meeting mode vs. banquet mode).
- **Audio & Privacy Controls**: Multi-zone adaptive ceiling microphone arrays complemented by high-fidelity two-way coaxial ceiling loudspeakers driven by localized Class-D amplifiers. Features dedicated one-touch privacy controls to mute microphone pickup and trigger door-mounted visual privacy indicators during private dining events.
- **Combined Space Mechanics & UI**: Wall/table touch control consoles supporting standalone room mode or combined VIP dining mode, with local HDMI/USB-C presentation plates and dedicated doorway status indicator panels.

5.5.7 Gallery / Exhibition Central Wayfinding & Open-Ceiling Audio Infrastructure

- **Public Schedule & Wayfinding Display**: 55-inch commercial 24/7 display (minimum 400 nits brightness) featuring an interactive or auto-rotating floor plan wayfinding map. Synchronized in real time with central Microsoft Exchange / Outlook calendars to display ongoing and upcoming meeting schedules across all Park spaces.
- **Open-Ceiling Audio Distribution**: High-efficiency open-ceiling pendant-style loudspeakers securely suspended from exposed structural slabs, driven by networked Class-D power amplifiers linked to the main audio DSP grid.
- **Multi-Source Audio Routing & Local Bluetooth Pairing**: Includes wall-mounted Bluetooth audio receiver modules for localized event music/speech pairing, while maintaining direct integration with the central head-end matrix to broadcast public address announcements, background media, or park-wide presentation feeds.

5.5.8 Staff Pantry Digital Signage & Media Display System

To deliver background communications, internal corporate scheduling updates, and high-quality staff area audio routing, the successful Tenderer shall deploy an integrated public media distribution layout within the staff pantry zone:

- I. **Signage Display Engine**: One (1) high-performance professional-grade digital signage display monitor.

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- II. **Pendant Speaker Array & Power Amplifiers:** Localized audio distribution utilizes an array of 6.5-inch two-way premium pendant loudspeakers securely suspended from the open-ceiling structure to maintain equal acoustic coverage. Driven by a localized energy-efficient Class D power amplifier linked directly to the head-end audio processors.

5.5.9 Doorway Room Booking System & Digital Tender Box Subsystem

- **Doorway Room Booking System:**

- I. **Hardware & Mounting:** Wall-mounted enterprise room scheduling touch screen, white smooth casing, featuring an integrated high-visibility multi-color availability light mounted outside each of the 13 meeting rooms.
- II. **Power & Network Connectivity:** Single-cable Power over Ethernet (PoE / IEEE 802.3af/at) delivering simultaneous power and high-speed network connectivity directly from core PoE+ access switches.
- III. **License & Platform Ecosystem:** Perpetual "buy out" hardware model requiring zero monthly or annual recurring software subscription fees. Direct native integration with Microsoft Outlook / Exchange server calendars, native compatibility with Microsoft Teams Panel runtime, and open support for third-party scheduling platforms and custom Android/Linux apps.

- **Digital Tender Box Display System:**

- I. **Hardware & Form Factor:** commercial grade LCD display monitor equipped with heavy-duty VESA front-ear mounting brackets for flush installation into the reception tender box cabinet.
- II. **CMS Backend:** Integrated cloud-based CMS subscription enabling administrative staff to remotely update tender announcements, publish deadlines, upload PDF/image notices, and manage display schedules from a central web portal.

5.5.10 86-inch Interactive Digital Whiteboards with Mobile Wheel Stands

The successful Tenderer shall supply, assembly, and configuration of two (2) 86-inch interactive digital panels mounted on heavy-duty mobile wheel stands. The displays must meet the following brand-agnostic technical specifications:

- **Display & Touch Performance:**
 - 86-inch DLED VA panel featuring native 4K UHD resolution (3840 x 2160).
 - Anti-glare tempered glass surface with Mohs level 9 hardness, resistant to optical interference.
 - Infrared recognition touch system supporting up to 50 simultaneous touch points with <2.5 ms response time and ±1 mm accuracy.
 - Minimum brightness of 400 cd/m², 4000:1 contrast ratio, and support for flicker-free and low blue light technologies.
- **System & Connectivity:**
 - Concealed Wi-Fi module compatible with Wi-Fi 6 standards and Bluetooth 5.0.
 - Comprehensive I/O including HDMI 2.0 (1x Out, 4x In), DP (1x In), front and rear USB 3.0/2.0 ports, and front-facing USB Type-C with Power Delivery (PD 20V 5A).
- **Audio-Visual & Collaboration Features:**

- Built-in speaker system.
- Built-in microphone system.
- Native wireless screen mirroring support for AirPlay, Chromecast, and Miracast protocols, allowing up to 9 simultaneous split-screen projections in Android mode.
- Integrated digital whiteboarding software supporting multi-page note-taking, real-time co-authoring, smart objective insertion, and direct saving to cloud drives (OneDrive/Google Drive).
- Mounting & Accessories:
 - Must include heavy-duty, commercial-grade mobile wheel stands with locking casters to support the 86-inch panel weight safely.
 - Included accessories: 2x writing pens, 1x remote control, AC power cables, and all necessary connection cables (USB/HDMI).

5.5.11 Security Risk Assessment and Audit (SRAA) Support & Remediation Mandate

Following the operational setup of all hardware and before final written sign-off acceptance can be initiated, HSITPL will arrange an independent external cybersecurity firm to conduct a mandatory SRAA across the newly deployed AV infrastructure. The successful Tenderer must comply with the following strict technical audit parameters:

- I. **Technical Cooperation Framework:** The successful Tenderer must provide active, immediate engineering resources to fully facilitate the external SRAA auditor. This includes delivering full firmware verification logs for all video conferencing bars, control processor port configuration readouts, active encryption certification validations (e.g., verifying AES-128 or WPA3 parameters on wireless BYOM presentation hubs), and participating in architectural code and layout interviews.
- II. **Mandatory Finding Remediation:** Any system vulnerabilities, communication bugs, open unencrypted command lines, firmware defects, or configuration deviations from the isolated AV network subnet design rules identified in the external SRAA report must be systematically resolved.
- III. **Zero-Cost Close-Out Clause:** The successful Tenderer holds sole contractual liability to execute all required vulnerability patching, network switch security hardening, port configuration lockouts, and software code updates at no additional cost to HSITPL. Full verification and a successful re-test by the SRAA auditor must be achieved before final UAT project sign-off can be granted.

5.5.12 Comprehensive Scope of Professional Services, Project Management, & Handover Deliverables

The successful Tenderer shall execute the following professional services, which must be fully directed, coordinated, and monitored by their assigned full-time on-site Project Manager (PM):

I. Expert-Led AV Design Blueprint, Wiring Schematics & Spatial Coordination

The Tenderer must assign a senior audio-visual design engineer (e.g., CTS-D or equivalent accredited master systems credential) to lead and sign off on all integration schematics. Key deliverables include:

- I. **As-Built System Layouts:** Submission of exhaustive physical rack elevations, logic block paths, equipment cable run paths, single-line audio-visual flow charts, and custom control panel interface maps.
- II. **Signal Path Configuration:** Mapping consistent EDID handshake configurations, content execution trees, and digital gain-staging charts to maintain zero signal loss across the uncompressed 1G AVoIP routing infrastructure.

- III. **Weekly Trade Alignment:** The assigned on-site PM must personally attend all site progress coordinates, review structural backing coordinates with main interior design contractors, inspect floor-box layout conduit dimensions (minimum 25mm diameter), and cross-examine network configuration steps alongside regional telecom builders (e.g., site engineers).

II. Dedicated Network Subnet Segregation & Control Isolation Hardening

To safeguard the core corporate network from heavy multimedia streaming data packets, the Tenderer must implement strict hardware-level isolation controls:

- I. **Control Subnet Dedication:** Configure dual-LAN ports on all central control processors to split incoming control data. All AVoIP encoders, decoders, DSP blocks, and IP cameras must run on completely isolated, independent AV network switches, entirely separated from the HSITPL's internal enterprise data lines.
- II. **Multicast Flood Mitigation:** Enforce advanced layer 2 loop-prevention, broadcast storm filters, and granular multicast group mappings on all dedicated switches to prevent heavy video conference streams from flooding the system or leaking into external segments.

III. Equipment Rack Assembly, Dual Power Quality Control (QC) & Color-Coded Patching

The successful Tenderer carries sole execution responsibility for the physical assembly and patching of all core items inside the Server Room 42U cabinets:

- I. **Redundant Power Cabling QC:** Inspect and wire the dual-redundant power supplies equipped on every core management switch, control engine, and DSP module. The primary power cable and secondary power cable must run via separate cable routes and terminate into separate, independent power source feeds (PDU-A and PDU-B) backed by distinct UPS circuits to ensure zero-downtime operation.
- II. **Structured Equipment Cord Routing:** All cable bundles must be neatly holiday-bound, structured, comb-bundled, and labeled with clear alphanumeric tags. Cable jackets must conform strictly to the following corporate color-coding standard: Blue for general data lines, White for wireless hubs, Yellow for security/CCTV terminals, Green for AV streaming/AVoIP loops, and Orange for IoT controllers.

IV. Acoustic Balancing, Professional Room Calibration & Tuning

- I. **Parametric EQ Equalization:** The successful Tenderer must execute comprehensive audio optimization sweeps across every meeting room using specialized calibration equipment. This includes fine-tuning the parametric EQ parameters, identifying localized noise-floor metrics, and setting echo cancellation reference thresholds to perfectly balance room reflections caused by architectural glass surfaces.
- II. **Camera Tracking Optimization:** Program and test the computer-vision AI analytics on the smart video bars and dual-lens cameras to ensure presenter tracking loops trigger in sub-second timelines.

V. Comprehensive Testing & Commissioning (T&C)

All installed hardware and software elements must undergo rigorous, formal on-site testing cycles witnessed and verified by the HSITPL IT Infrastructure team:

- I. **Power Outage Failover Simulation:** Simulate sudden utility electrical faults by alternately disconnecting active PDU-A and PDU-B source feeds, proving that stacked switches and control modules continue uninterrupted operation on the secondary power module with zero packet loss or connection drops.
- II. **Signal Hot-Plug Analysis:** Execute aggressive hot-plugging disconnect simulations across the wired table BYOD lines and wireless presentation hubs to confirm that the automatic peripheral switchers swap control states without system lockups or video blanking.
- III. **Boundary Validation Audit:** Conduct connectivity sweep scans from the isolated AV network switch segments, confirming that any attempt to communicate laterally with internal corporate assets or databases is blocked and logged by the security subnets.

- IV. **Speech Transmission Index (STI) Testing:** STI measurements shall be taken using calibrated acoustic analyzer signals across every seated position in all 13 Meeting Rooms, the Executive Boardroom, Large Meeting Room, and Private Dining space. Every room must achieve a minimum STI score of ≥ 0.60 ("Good" to "Excellent" intelligibility).
- V. **OFCA Radio Equipment Compliance:** All wireless microphone receivers, transmitters, and active antenna distribution hardware must comply fully with Office of the Communications Authority of the HKSAR (OFCA) licensing standards for the 470–698 MHz frequency spectrum.

VI. DLP, Warranty, and Licensing Commencement Agreement

Following the successful completion of all T&C cycles and the complete close-out of all SRAA findings to the satisfaction of HSITPL, the successful Tenderer shall deliver complete as-built diagrams, finalized device configuration source code files, and user operating manuals. The official issuance of the written sign-off acceptance certificate by HSITPL shall serve as the sole contractual trigger to activate the DLP, full manufacturer hardware replacement warranties, and the 12-month software/room license subscriptions. The defect liability period ("DLP") shall commence from the date immediately after Project completion and acceptance by HSITPL and shall continue for a period of 12 calendar months. The successful Tenderer shall be responsible for replacement of consumable parts/spare parts of normal wear during the DLP and shall respond within 1 Business Day when called upon to carry out any defect's rectification works during the DLP.

5.6 Project Timeline

Tender invitation	11 September 2026
Tender submission deadline	17 September 2026
Presentation	18 September 2026
Tender award	21 September 2026
Project kick-off (i.e., Commencement Date)	21 September 2026
Project completion	15 November 2026
Commencement of the DLP	The date of issuance of the written sign-off acceptance certificate by HSITPL
Last day of the DLP	One (1) year after the commencement of the DLP

Remark: The above schedule is tentative and will be adjusted based on actual project circumstances at the sole and absolute discretion of HSITPL.

Tender Schedule 6: Proposed Solution for Tender

To: Hong Kong-Shenzhen Innovation and Technology Park Limited ("HSITPL")

“Supply and Installation of Audio-Visual Systems, Doorway Room Booking Systems, and Digital Tender Box Systems (Ref. No. FD-03-06-02(337))”

This section contains Parts 1 to 7 and should be duly completed by the Tenderer and included in tender proposal. The Tenderer is required to present all details of his/her proposed solution according to the guidelines specified under each Part.

Tenderers are reminded that no price information should be included in the Technical Proposal. Tenderers are expected to provide the following information in an A4-sized document.

Part 1: Mandatory Assessment Criteria

The Tenderer acknowledges and agrees that participation in this Tender requires compliance with the mandatory assessment criteria outlined in this Part 1 (“**Mandatory Assessment Criteria**”). By response with “Y”, the Tenderer hereby declares and confirms that he/she meets the Mandatory Assessment Criteria. Failure to declare and submit supporting documents confirming compliance with any of the Mandatory Assessment Criteria may result in the disqualification of the Tender.

Item	Description / Proven Experience	Declaration with supporting document(s) Yes (Y) / No (N)
System Integrator Status	The Tenderer must hold active gold-level or equivalent premier master systems integration credentials and factory certifications directly from the proposed central control automation, enterprise commercial display, and unified video conferencing hardware manufacturers, backed by official letters of authorization.	
Operational Experience	The Tenderer must demonstrate a minimum of five (5) years of continuous operation in providing enterprise-grade commercial AV system architectural designs, hardware control programming, engineering integration, and unified communications infrastructure deployments inside Hong Kong. <i>(Submit a copy of a valid</i>	

	<i>Business Registration Certificate)</i>	
Relevant Project Track Record	The Tenderer must have successfully completed a minimum of three (3) local corporate or institutional infrastructure deployment projects of a similar scale (comprising a minimum of 10 integrated video conferencing rooms utilizing centralized AVoIP video distribution matrices and networked audio processing networks) within the past five (5) years in Hong Kong. <i>(Submit Client Reference Letters or formal Project Handover/Completion Certificates)</i>	
Dedicated On-Site Project Management	The Tenderer must commit a certified, full-time Project Manager (PM) dedicated exclusively on-site to the HSITP Building 1 Head Office project. This PM cannot be split or shared with other active corporate accounts or external projects. <i>(Submit the proposed PM's detailed CV, professional credentials such as project management professional (pmp), and a legally binding Letter of Commitment)</i>	
Design Lead Assignment	The Tenderer must assign an active, and certified expert-level AV systems design engineer or master programmer to directly lead, validate, and sign off on the comprehensive uncompressed signal pathways, digital gain-staging configurations, custom touch-panel user interfaces, and central control subnet architectures. <i>(Submit proof of active certification and</i>	

	assignment logs)	
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Part 2: Company Background & Cloud Credentials

Please provide details of active hardware, security, or network integrator certifications held by the Tenderer.

Part 3: Past Case Reference

Describe past reference cases similar in nature (specifically high-density core switching, dual-tier multi-vendor firewalls, cloud-managed Wi-Fi, and enterprise segmentation).

Reference Client	Project Period	Technical Scope and Implementation Details	Contact Person (optional)	Contact Telephone No. (optional)

Part 4: Qualification of Project Team Members

Please list the key team members and their roles in the proposed project team structure. For each member, provide their certified qualifications and briefly describe how their engineering background will directly contribute to successful project implementation.

Note: It is the Tenderer's contractual responsibility to assemble and maintain a replacement team with identical or superior qualifications in the event of personnel movement during the project period.

Name	Proposed Project Role	Professional Qualifications (e.g., project management professional (pmp), AVIXA Certified Technology Specialist-Design (CTS-D))	Years of Relevant Experience

Part 5: Details of Design and Technical Implementation

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Please describe in exhaustive technical detail the Tenderer's system design, implementation blueprints, and hardware optimization strategies for the integrated Audio-Visual and Video Conferencing Infrastructure across the Building 1 10/F Head Office footprint. The technical submission must be completely brand-agnostic, replacing proprietary model names with open performance metrics, and must specifically illustrate how the Tenderer's assigned full-time Project Manager (PM) will coordinate each engineering pipeline with the main interior fit-out contractors and construction trades. The Tenderer's technical proposal must comprehensively address each of the following engineering components:

1. Centralized Head-End AVoIP Switching Matrix and Control Automation Core

- I. **Engineering Requirements:** Detail the logical and physical architecture of the centralized head-end master control rack located in the central server room. Explain the configuration of the dual-redundant AVoIP hardware management controllers, focusing on zero-latency matrix video routing, automated multi-node endpoint discovery, and system telemetry monitoring.
- II. **Multicast Layer Orchestration:** Map out the Layer 2/3/4 network configuration profiles for the stacked 52-port switches dedicated to the AV core. Tenderers must explicitly detail their implementation of factory-preconfigured network routing parameters—specifically IGMP Snooping, IGMP Querier, and IGMP Plus—illustrating how the system eliminates multicast flood packets and prevents data loop saturation across the multi-room distribution layers.
- III. **PM Site Coordination:** Detail how the full-time Project Manager will coordinate structural rack elevations, thermal dissipation ventilation clearance pathways, and independent dual electrical source feeds (PDU-A and PDU-B) within the server cabinets.

2. 13-Room High-Density Spatial AV Layout & Endpoint PoE+ Allocation Mappings

- I. **Engineering Requirements:** Provide complete physical equipment layout blueprints and single-line schematic connection diagrams tailored to the exact corporate footprint: six (6) 43-inch UHD for Small Meeting Rooms, eight (8) 65-inch UHD for CXO Executive Meeting Rooms, the Private Dining space, and the Staff Pantry zone.
- II. **Power Density Mappings:** Deliver a comprehensive Power-over-Ethernet (PoE/PoE+) budget distribution matrix calculating the maximum aggregate watt draws for all networked endpoints (including all-in-one video bars, hardware room booking schedulers, wireless presentation receivers, and touch control panels). Demonstrate that the proposed switches maintain a minimum 15% expansion safety buffer while delivering continuous IEEE 802.3af/at power simultaneously across active endpoints.
- III. **PM Site Coordination:** Document the PM's verification process for floor-box layout conduit dimensions (minimum 25mm diameter), wall-mount backing plate structural reinforcements, and maximum cable run tolerances under 100 meters.

3. UC Appliance Matrix, Wired BYOD, and Wireless BYOM Interconnection Architecture

- I. **Engineering Requirements:** Provide a detailed architectural description of the collaborative workspace runtime environment. Explain how the proposed setups execute dual-boot operations, seamlessly transitioning between native UC Appliance Modes (configured for corporate communication ecosystems) and localized Bring Your Own Device (BYOD) configurations.
- II. **Signal Bridging Mechanics:** Map out the logical signal flow paths for the extended table-integrated single-cable USB-C connection docks and the enterprise hardware wireless presentation hubs. Tenderers must explain the technical mechanics of their over-the-air Bring Your Own Meeting (BYOM) bidirectional driver bridging, illustrating how a guest laptop instantly captures the room's smart tracking cameras, microphonic arrays, and commercial display monitors without requiring manual software installation or local administrative privileges.

4. External Security Risk Assessment and Audit (SRAA) System Hardening and Remediation Blueprint

- I. **Engineering Requirements:** Detail the Tenderer's systematic security hardening protocol for all networked AV hardware, control engines, and intelligent peripherals. Tenderers must document their methodology to support a mandatory post-installation SRAA executed by HSITP's

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independent external cybersecurity vendor.

- II. **Remediation Compliance:** Map out the engineering workflow to immediately remediate all potential vulnerabilities, protocol gaps, or open unencrypted service lines identified during the audit. The Tenderer must explicitly confirm their contractual commitment to execute all firmware updates, port configuration lockouts, and switch hardening scripts at no added cost, obtaining formal written verification and close-out sign-off from the SRAA auditor prior to User Acceptance Testing (UAT).

5. Physically Isolated AV Control Subnet and Dedicated Network Segregation Framework

- I. **Engineering Requirements:** Provide a comprehensive logical network routing blueprint illustrating how heavy media streams and sensitive control signals are decoupled from the primary corporate data grid. Detail the configuration of the central control processors utilizing physically isolated, dedicated AV network subnets.
- II. **Boundary Control Enforcement:** Explain the Access Control List (ACL) definitions, dual-LAN port split settings, and firewall port parameters designed to enforce absolute logical isolation between the untrusted AV segment and the HSITPL's internal enterprise network LAN. Demonstrate how the architecture completely blocks lateral threat traversal and prevents cross-network bandwidth saturation while safely allowing inspected inbound internet transit for cloud monitoring and automated firmware lifecycle syncs.

6. High-Density Wireless Microphone RF Subsystem and Multi-Zone Antenna Distribution Calculus

- I. **Engineering Requirements:** Deliver an expert-level RF engineering blueprint for the multi-channel digital wireless microphone system deployed across the executive zones. Tenderers must provide a detailed spectrum allocation calculation map within the 470–698 MHz frequency window to avoid local RF interference.
- II. **Subsystem Distribution Topology:** Map out the exact physical and logical loops connecting the wall/ceiling directional antennas, active RF antenna distribution mainframes, inline signal amplifiers (+10dB/+3dB selectable gain steps), bias-T coaxial DC electrical power inject modules, and passive 2-way splitters/combiners. Prove how the proposed system compensates for long-haul coaxial RF cable attenuation and maintains uncompromised signal-to-noise ratios across the expanded 24-channel digital wireless receiver network.

7. Automated USB Peripheral Switcher Host Routing Logic and Custom User Interfaces

- I. **Engineering Requirements:** Provide the operational logic state diagrams governing the automated hardware USB host switcher modules. Detail the sub-second hot-plug detection rules that dynamically route active peripheral assets (pan tilt and zoom (ptz) tracking lenses, speakerphones, and microphone lines) when an executive connects a personal laptop to the wired table BYOD dock, ensuring an instantaneous swap away from the fixed in-room computer with no user intervention.
- II. **UI Layout Map:** Submit complete visual mockups and layout designs for the custom touch-screen control panels and tablet interfaces tailored with official institutional branding. Show the user-friendly navigation flows for room combining/splitting presets, video routing matrix selections, display power toggles, audio level gain sliders, and Bluetooth media pairing scripts.

8. Advanced Acoustic Room Tuning, Parametric EQ Calibration, and AEC Reference Alignment

- I. **Engineering Requirements:** Document the Tenderer's formal field engineering methodology for the post-installation acoustic commissioning and calibration of all meeting spaces to compensate for challenging modern architectural glass boundaries.
- II. **Calibration Protocol:** Describe the sequential steps for localized multi-band parametric equalizer (EQ) fine-tuning, ambient noise-floor profiling, speaker multi-zone delay configurations, and digital audio gain-staging. Detail the optimization of the hardware Acoustic Echo Cancellation (AEC) reference routing loops within the multi-core Dante/AES67 DSP matrix, proving how the system completely eliminates double-talk clipping, room reflections, and acoustic feedback loops during high-density multi-party video conferencing sessions.

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- III. **PM Site Coordination:** Outline the PM's process to verify that structural finishes, ceiling speaker back-boxes, and spatial layouts are acoustically verified prior to final UAT validation loops witnessed by the HSITPL IT Infrastructure team.

Part 6: Proposed Project Implementation Plan

Tenderers must submit a comprehensive, itemized master project installation plan accompanied by a detailed Gantt chart tracking all engineering tracks. The technical proposal must explicitly demonstrate deployment strategies capable of successfully accelerating workflows within a highly compressed, non-negotiable execution timeline. This timeline is based on a target Tender Award date in September 2026, immediate stock lock-in, physical on-site mobilization in late September 2026, and 100% project completion, close-out, and administrative handover in late November 2026.

6.1 Full-Time Dedicated On-Site Project Manager (PM) Mandate

Tenderers must confirm how their assigned on-site Project Manager (PM) will manage daily site-level operational dependencies, site safety, and trade sequencing:

- **Multi-Party Communication:** Define structured, clear communication and escalation charts between HSITPL's internal stakeholders, designated information technology vendors, main interior design builders, external SRAA auditors and adjacent engineering groups (such as site network and telecom providers).
- **Site Interface Management:** Detail the PM's process to audit physical installation spaces, validate structural wall-backing plate reinforcement calculations, coordinate low-voltage electrical feeds, resolve spatial interface conflicts within ceiling plenums or floor-box conduits (minimum 25mm diameter), and secure site access authorizations for engineering staff.
- **Consultant Verification Liaison:** Supervise the scheduling of comprehensive technical submittals, maintain active Request for Information (RFI) logs, coordinate physical on-site mockups, and lead physical checkpoint audits alongside the HSITPL IT Infrastructure team to confirm total compliance with quality parameters.

6.2 Expert AV Design & Programming Configuration Pipeline

Tenderers must detail how their assigned AVIXA Certified Technology Specialist-Design (CTS-D) or Master Programmer will lead design validation, software compilation, and final deployment optimization:

- **Core Engineering Authority:** Describe the design lead's role in planning uncompressed 1G AVoIP video streaming pathways, digital gain-staging, multi-channel active RF distribution loop designs, EDID handshake parameters, HDCP key constraints, and centralized control system compilation logic.
- **Subnet Isolation & Spatial Logic Calibration:** Detail the configuration blueprint allocating physically isolated, dedicated AV network hardware subnets. This planning must completely separate heavy multicast video packets and control telemetry from the main corporate enterprise LAN, safely sizing bandwidth allocations to support 6 Small Rooms, 8 CXO Executive Rooms, the Private Dining room, and Pantry display grids.
- **Control Integration & Security Hardening Framework:** Outline the engineering design for room combination/splitting matrices, automated peripheral switching states, custom HTML5 graphical user interfaces, and network port lockdown protocols. This framework must ensure the entire AV environment is hardened to meet the compliance criteria required for the external security audit.

6.3 Accelerated Procurement & Supply Chain Buffer Management

Provide comprehensive details of the Tenderer's supplier network coordination and contingency buffers to entirely eliminate delivery stalls:

- **Immediate Stock Lock-In:** Detail steps to execute immediate, binding factory orders within 48 hours of contract award ([September] 2026) for all core items: enterprise backlit displays (43", 65", 86"), AVoIP encoders/decoders, multi-core audio DSP engines, flagship video bars, intelligent

ceiling microphones, and room booking touchscreens.

- **Continuous Logistics Tracking:** Document the PM's process to execute weekly logistics validation tracks with component manufacturers, manage shipping routes through Hong Kong port authorities, and maintain local storage allocations to guarantee on-site equipment mobilization buffers.

6.4 Phased Implementation Milestones

The successful Tenderer must execute its deployment strategies in strict alignment with the following four-phase implementation framework:

- **Phase 1: Initiation, Design Freeze & Procurement (late September 2026):** Project onboarding, setup of the localized PM workspace, mobilization of the CTS-D design lead, and final cross-examination of fit-out spatial plans. Submission and approval of all technical submittals, shop drawings, uncompressed video single-lines, schematic blocks, and product data sheets to achieve a complete design freeze and place binding hardware orders.
- **Phase 2: Spatial Site Audit & Core Head-End Rack Assembly (Late September 2026):** Multi-zone physical site inspections, backing plate verification, and low-voltage electrical pathway reviews. Assembly, mounting, and termination of central core AVoIP matrix controllers, stacked managed switches, and multi-core audio DSP engines inside the server room 42U racks. This includes quality control audits of dual load-sharing A/B power feeds connected to independent UPS circuits.
- **Phase 3: Spatial Equipment Deployment, Microphonic RF Cascading & Outbound Room Patching (Late September – October 2026):** Physical on-site mounting of commercial displays, video bar structural bracing alignment, and ceiling mounting of intelligent microphone arrays and pendant loudspeakers. Execution of neat, comb-bundled fiber and copper patching, adhering strictly to corporate color-coding standards (Green for AV, Yellow for security). Logical activation of hardware subnet isolation blocks to isolate multicast payloads.
- **Phase 4: SRAA Coordination, Acoustic Calibration, UAT & Handover (November 2026):** Active technical support for the independent, third-party SRAA vendor arranged by HSITPL. This includes rapid remediation, vulnerability patching, and close-out of any security configuration findings at zero added cost. Locally perform multi-band parametric EQ acoustic room balancing, noise-floor profiling, and AEC reference loop tuning witnessed by the HSITPL IT Infrastructure team. Validate 180-day control logging limits, conduct operational presentations, deliver compiled/uncompiled source code files alongside operational as-built guidelines, and complete official written handover sign-off.

Part 7: Project Management and Quality Assurance

Tenderers must describe how the execution quality, physical configuration stability, and on-site deployment validation will be managed, audited, and controlled.

The assigned full-time on-site Project Manager (PM) shall carry direct responsibility for executing, maintaining, and providing written administrative logs for each of the quality orchestration tracks detailed below:

7.1 Dual Power Infrastructure Quality Assurance Audits

Tenderers shall execute a systematic physical audit and point-to-point wiring verification protocol across all core head-end cabinets located in the central server room:

- **Physical Routing Verification:** Audit and confirm that the primary and secondary hot-swappable load-sharing power supply modules equipped on every central core switch, central distributed AVoIP controller core, and multi-core audio digital signal processor (DSP) engine are routed via entirely separate physical cable management pathways.
- **PDU Isolation Compliance:** Every device must have its primary power cord terminated into Power Distribution Unit A (PDU-A) and its redundant power cord terminated into Power Distribution

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Unit B (PDU-B). PDU channels must be backed by independent, isolated UPS circuits to eliminate single points of utility electrical failure and guarantee zero-downtime operation.

7.2 Acceptance-Linked DLP & Licensing Tracking Audits

The successful Tenderer must implement a transparent internal configuration tracking protocol to safeguard HSITPL against premature warranty or subscription runtime activation:

- **Subscription Hold Parameters:** All unified communication room licenses, wireless Bring Your Own Meeting (BYOM) software packages, control system automation subscriptions, and centralized device cloud management platforms must remain unactivated throughout the physical deployment phase.
- **Sign-Off Linkage:** The successful Tenderer must provide automated verification logs proving that the DLP, comprehensive hardware component replacement warranties, and active software/room subscriptions commence strictly on the exact day of official written client sign-off acceptance, not device delivery.

7.3 External SRAA Audit Tracking & Close-Out Protocol

Following the full hardware setup and control compilation, HSITPL will arrange an independent, external third-party cybersecurity firm to run a formal SRAA across the AV deployment. The contractor's engineering team must execute the following compliance tracks:

- **Audit Technical Support:** Provide comprehensive technical cooperation to the external SRAA auditor. This includes delivering firmware configuration readouts, port exception matrices, active firmware certificate logs, and encryption mapping profiles (e.g., validating secure AES-128 or WPA3 parameters on wireless hubs).
- **System Hardening Remediation:** The successful Tenderer shall carry sole contractual liability to systematically track, manage, and close out any system vulnerabilities, open port defects, communication gaps, or logical configuration deviations discovered during the external SRAA audit.
- **Zero-Cost Compliance Execution:** All software reprogramming scripts, switch port lockdowns, and firmware patches required to achieve a 100% successful clean re-test by the SRAA auditor must be executed by the successful Tenderer at zero added cost to HSITPL before formal User Acceptance Testing (UAT) sign-off can be initiated.

7.4 13-Room High-Density Scale Capacity & Collaborative Load Stress Verification

Tenderers must provide a rigorous engineering methodology to simulate and stress-test the entire audio-visual core grid running under full operational capacities:

- **AVoIP Matrix Multicast Stressing:** Simulate simultaneous maximum data loading across the uncompressed 1G AVoIP distribution switching switches.
- **Simultaneous Multi-Room UC Loading:** Trigger active, concurrent corporate video conferencing calls and bidirectional wireless presentation/BYOM data streaming sessions across all thirteen (13) environments simultaneously, encompassing the six (6) Small Meeting Rooms and eight (8) Medium/CXO Executive Meeting Rooms. The testing blueprint must prove that the audio processing cores, wireless antenna networks, and stacked managed switches maintain sub-second packet forwarding speeds, optimal thermal operating thresholds, and zero signal blanking or micro-burst congestion during peak usage.

7.5 Physically Isolated AV Network Subnet & Logical Traversal Isolation Audits

- **Subnet Partition Verification:** Deliver comprehensive physical and logical diagnostic readouts verifying that all real-time audio-visual endpoints are completely decoupled from the main corporate enterprise network.
- **Boundary Control Testing:** Execute aggressive penetration testing and cross-segment communication sweep scans originating from the uncompressed AVoIP streaming nodes and IP cameras. Tenderers must demonstrate that any unauthorized attempt to communicate laterally with internal corporate databases or secure workstation segments is instantly blocked by Layer 3 switch Access Control Lists (ACLs) and dual-LAN control boundaries, with every blocked transit

attempt successfully logged for compliance tracking.

7.6 Automated Host Switcher Logic, State Control & Custom UI Validation

- **USB State Change Verifications:** Map out the logic state diagrams governing the automated hardware USB host switcher modules. Tenderers must validate that sub-second hot-plug detection rules trigger perfectly when an executive connects a guest laptop to the table USB-C bridge dock, instantly swapping control of all room tracking cameras, soundbars, and microphone arrays away from the fixed in-room computer with zero driver errors or manual terminal adjustments.
- **UI Layout Alignment:** Provide verification diagnostic scripts for all custom touch-screen control panels and tablet user interfaces tailored with official institutional branding. Demonstrate successful execution of room combining/splitting presets, digital volume gain sliders, source selection paths, and Bluetooth media pairing configurations in real time without signal hesitation.

7.7 Advanced Acoustic Room Tuning, Parametric EQ Calibration & AEC Path Verification

- **Spatial Calibration Protocols:** Provide a complete technical description of the on-site acoustic optimization procedures designed to mitigate sound reflections caused by modern architectural glass finishes. Tenderers must document their methodology for localized multi-band parametric equalizer (EQ) adjustments, speaker zone delay balancing, noise-floor profiling, and microphone room balancing.
- **Echo Cancellation Optimization:** Detail the alignment of the hardware Acoustic Echo Cancellation (AEC) reference loops within the multi-core Dante/AES67 DSP matrix. Prove that the setup completely eliminates double-talk clipping, acoustic bleed, and feedback loops across all executive boardroom zones, ensuring pristine audio profiles during high-density video conferencing.

7.8. Failure Mode Redundancy Simulations, UAT Sign-Off & As-Built Handover

All active audio-visual infrastructure elements must undergo 100% systematic, rigorous field validation witnessed and verified by the HSITPL IT Infrastructure team:

- **Component Failover Simulations:** Tenderers must execute physical switch stack ring disconnects, control engine loop cuts, and alternate PDU power disconnections to prove that system operations seamlessly maintain states on standby modules with zero hardware lockups or session dropouts.
- **Final Handover Operations:** Following successful completion of all testing cycles and complete remediation of all SRAA audit findings, the successful Tenderer shall deliver certified operational training sessions alongside a comprehensive index of as-built documentation. This handover must include schematic single-line diagrams, uncompiled/compiled control source code files, IP matrix single-lines, and complete Operation & Maintenance (O&M) manuals.

The formal written issuance of the sign-off acceptance certificate by HSITPL shall serve as the sole valid trigger to commence the DLP, full equipment warranties, and active software room subscriptions.

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