



Republic of the Philippines
GOVERNMENT PROCUREMENT POLICY BOARD
TECHNICAL SUPPORT OFFICE

PHILIPPINE BIDDING DOCUMENTS

Supply, Delivery, and Installation of Audio and Video Equipment for the GPPB Boardroom, Auditorium, Training Rooms, and Meeting Rooms

(EARLY PROCUREMENT ACTIVITY)

BAC-GDS-2024-005-EPA

Government of the Republic of the Philippines

16 October 2023

Preface

These Philippine Bidding Documents (PBDs) for the procurement of Goods through Competitive Bidding have been prepared by the Government of the Philippines for use by any branch, constitutional commission or office, agency, department, bureau, office, or instrumentality of the Government of the Philippines, National Government Agencies, including Government-Owned and/or Controlled Corporations, Government Financing Institutions, State Universities and Colleges, and Local Government Unit. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract or Framework Agreement, as the case may be; (ii) the eligibility requirements of Bidders; (iii) the expected contract or Framework Agreement duration, the estimated quantity in the case of procurement of goods, delivery schedule and/or time frame; and (iv) the obligations, duties, and/or functions of the winning bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Goods to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

- a. All the documents listed in the Table of Contents are normally required for the procurement of Goods. However, they should be adapted as necessary to the circumstances of the particular Procurement Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, Bid Data Sheet, General Conditions of Contract, Special Conditions of Contract, Schedule of Requirements, and Specifications are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.

- d. The cover should be modified as required to identify the Bidding Documents as to the Procurement Project, Project Identification Number, and Procuring Entity, in addition to the date of issue.
- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.
- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

Table of Contents

| | |
|--|-----------|
| Glossary of Acronyms, Terms, and Abbreviations | 4 |
| Section I. Invitation to Bid..... | 7 |
| Section II. Instructions to Bidders..... | 11 |
| 1. Scope of Bid | 12 |
| 2. Funding Information..... | 12 |
| 3. Bidding Requirements | 12 |
| 4. Corrupt, Fraudulent, Collusive, and Coercive Practices..... | 12 |
| 5. Eligible Bidders..... | 12 |
| 6. Origin of Goods | 13 |
| 7. Subcontracts | 13 |
| 8. Pre-Bid Conference | 13 |
| 9. Clarification and Amendment of Bidding Documents | 13 |
| 10. Documents comprising the Bid: Eligibility and Technical Components | 14 |
| 11. Documents comprising the Bid: Financial Component | 14 |
| 12. Bid Prices | 14 |
| 13. Bid and Payment Currencies | 15 |
| 14. Bid Security | 15 |
| 15. Sealing and Marking of Bids | 16 |
| 16. Deadline for Submission of Bids | 16 |
| 17. Opening and Preliminary Examination of Bids | 16 |
| 18. Domestic Preference | 16 |
| 19. Detailed Evaluation and Comparison of Bids | 16 |
| 20. Post-Qualification | 17 |
| 21. Signing of the Contract | 17 |
| Section III. Bid Data Sheet | 18 |
| Section IV. General Conditions of Contract | 20 |
| 1. Scope of Contract | 21 |
| 2. Advance Payment and Terms of Payment | 21 |
| 3. Performance Security | 21 |
| 4. Inspection and Tests | 21 |
| 5. Warranty | 22 |
| 6. Liability of the Supplier | 22 |
| Section V. Special Conditions of Contract | 23 |
| Section VI. Schedule of Requirements | 27 |
| Section VII. Technical Specifications | 28 |
| Section VIII. Checklist of Technical and Financial Documents | 31 |

Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

CDA - Cooperative Development Authority.

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.

CPI – Consumer Price Index.

DDP – Refers to the quoted price of the Goods, which means “delivered duty paid.”

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – “Free Carrier” shipping point.

FOB – “Free on Board” shipping point.

Foreign-funded Procurement or Foreign-Assisted Project– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

Framework Agreement – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as “Call-Offs,” are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

GPPB – Government Procurement Policy Board.

INCOTERMS – International Commercial Terms.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

Supplier – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

UN – United Nations.



Republic of the Philippines
GOVERNMENT PROCUREMENT POLICY BOARD
TECHNICAL SUPPORT OFFICE

Section I. Invitation to Bid

Republic of the Philippines
GOVERNMENT PROCUREMENT POLICY BOARD
TECHNICAL SUPPORT OFFICE

**INVITATION TO BID FOR THE SUPPLY, DELIVERY, AND
INSTALLATION OF AUDIO AND VIDEO EQUIPMENT FOR THE
GPPB-TSO BOARDROOM, AUDITORIUM, TRAINING
ROOMS, AND MEETING ROOMS**

1. The *Government Procurement Policy Board – Technical Support Office (GPPB-TSO)*, through the *National Expenditures Program FY 2024* intends to apply the sum of *Twenty Million Pesos (PhP20,000,000.00)* being the ABC to payments under the contract for *Supply, Delivery, and Installation of Audio and Video Equipment for the GPPB-TSO Boardroom, Auditorium, Training Rooms, and Meeting Rooms with project number BAC-GDS-2024-005-EPA*. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The GPPB-TSO now invites bids for the Early Procurement Activity (EPA) of the above Procurement Project, in accordance with the provisions under Appendix 31 of the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184. Delivery of Goods is required *to be completed within one hundred fifty (150) calendar days from the receipt of the Notice to Proceed, in accordance with the schedule of requirements*. Bidders should have completed, within *five (5) years* from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.
 - a. Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.
4. Prospective Bidders may obtain further information from *the Bids and Awards Committee (BAC) through its Secretariat* and inspect the Bidding Documents at the address given below from *Monday to Friday 7:00 AM – 5:00 PM*.
5. A complete set of Bidding Documents may be acquired by interested Bidders on **16 October 2023** from the given address and website(s) below ***and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Twenty-Five Thousand Pesos (PhP25,000.00)***. A bidder is allowed to pay the applicable fee via the Landbank Link biz portal which can be accessed through this link: <https://www.lbp-eservices.com/egps/portal/index.jsp> and



Republic of the Philippines
GOVERNMENT PROCUREMENT POLICY BOARD
TECHNICAL SUPPORT OFFICE

shall present its proof of payment to the BAC Secretariat on or before the deadline of submission of bid or may send a copy thru the email address given below.

6. The *GPPB-TSO* will hold a Pre-Bid Conference on **25 October 2023 at 8:00 AM via Zoom**, which shall be open to prospective bidders. Interested Bidders may join the pre-bid conference through this link:
<https://zoom.us/j/92209230142?pwd=QXRXZWIJVZsRzhFVmdHOuo0OHp0Zz09>
7. Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below, **on or before 8:00 AM of 08 November 2023**. Late bids shall not be accepted.
8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.
9. Bid opening shall be on **08 November 2023, 8:00 AM** at the given address below. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. The award of contract for Procurement Projects undertaken through EPA may be made only upon the following conditions and shall be in accordance with Item 7 of Appendix 31 of the 2016 revised IRR of RA 9184:
 - a. approval and effectivity of the funding sources, to wit: (i) General Appropriations Act; (ii) Corporate Budget; (iii) Appropriations Ordinance; or (iv) loan agreement in the case of FAPs; or
 - b. the reenactment of the previous year's budget which constitutes the current year's authorized budget, when authorized by the Constitution, law or rules.
11. The GPPB-TSO reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
12. For further information, please refer to:

BIDS AND AWARDS COMMITTEE

GOVERNMENT PROCUREMENT POLICY BOARD –
TECHNICAL SUPPORT OFFICE

Unit 2504, Raffles Corporate Center, 1605 Emerald Ave. Ortigas Center Pasig

bacsec@gppb.gov.ph

(02) 7900 6740 to 41 and 43 to 44

<https://www.gppb.gov.ph/>



Republic of the Philippines
**GOVERNMENT PROCUREMENT POLICY BOARD
TECHNICAL SUPPORT OFFICE**

13. You may visit the following websites:

For downloading of Bidding Documents:

- a. GPPB website at <https://www.gppb.gov.ph/gppb-tso-procurement/>
- b. PhilGEPS website at <https://philgeps.gov.ph/>

Issued this 16th day of October 2023.

ATTY. MA. JOZZENNE CLAIRE M. BELTRAN-CARANDANG
Chairperson, Bids and Awards Committee



Republic of the Philippines
**GOVERNMENT PROCUREMENT POLICY BOARD
TECHNICAL SUPPORT OFFICE**

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, *GPPB-TSO* wishes to receive Bids for the *Supply, Delivery, and Installation of Audio and Video Equipment for the GPPB-TSO Boardroom, Auditorium, Training Rooms, and Meeting Rooms* with identification number *BAC-GDS-2024-005-EPA*.

The Procurement Project (referred to herein as “Project”) is composed of *1 lot*, the details of which are described in Section VII (Technical Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for *FY 2024* in the amount of *Twenty Million Pesos (PhP20,000,000.00)*.

2.2. The source of funding is:

a. NGA, the National Expenditure Program.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

- 5.2. Foreign ownership limited to those allowed under the rules may participate in this Project.
- 5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to:
 - a. For the procurement of Non-expendable Supplies and Services: The Bidder must have completed a single contract that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

7. Subcontracts

- 7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than twenty percent (20%) of the Project.

The Procuring Entity has prescribed that:

- a. Subcontracting is not allowed.
- 7.2. Subcontracting of any portion of the Project does not relieve the Supplier of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Supplier's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time through Zoom Videoconferencing as indicated in paragraph 6 of the **IB**.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within *five (5) years* prior to the deadline for the submission and receipt of bids.
- 10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

11. Documents comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.
- 11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Bid Prices

- 12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:
 - a. For Goods offered from within the Procuring Entity's country:
 - i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);
 - ii. The cost of all customs duties and sales and other taxes already paid or payable;

- iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and
 - iv. The price of other (incidental) services, if any, listed in the **BDS**.
- b. For Goods offered from abroad:
- i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.
 - ii. The price of other (incidental) services, if any, as listed in the **BDS**.

13. Bid and Payment Currencies

- 13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.
- 13.2. Payment of the contract price shall be made in:
- a. **Philippine Pesos.**

14. Bid Security

- 14.1. The Bidder shall submit a Bid Securing Declaration² or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 14.2. The Bid and bid security shall be valid for one hundred twenty (120) calendar days from the Bid Opening. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.
- a. In the case of EPA, PE may request the bidders to extend the validity of their bid securities beyond one hundred twenty (120) calendar days, prior to their expiration, if the funding source for the Procurement Project has yet to be approved and made effective.

A change in the form of the bid security is allowed if this is made prior to the expiration of the bid validity sought to be extended.

If the bidder refuses to extend the bid validity, the PE shall reject the bid submitted by said bidder.

15. Sealing and Marking of Bids

Each Bidder shall submit **three (3) copies** of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

16. Deadline for Submission of Bids

16.1. The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

17. Opening and Preliminary Examination of Bids

17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

18. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 14 shall be submitted for each lot or item separately.

- 19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.
- 19.4. The Project shall be awarded as **one (1) contract**.
- 19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

20. Post-Qualification

- 20.1. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

- 21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

| ITB Clause | |
|------------|---|
| 5.3 | <p>For this purpose, contracts similar to the Project shall be:</p> <ul style="list-style-type: none"> a. <i>Supply, delivery, and installation, including configuration and/or commissioning of audio and video equipment.</i> b. <i>completed within five (5) years prior to the deadline for the submission and receipt of bids.</i> |
| 7.1 | <i>No further instruction.</i> |
| 12 | The price of the Goods shall be quoted DDP at the New Building of the Government Procurement Policy Board – Technical Support Office at UP Compound, Commonwealth Avenue, Diliman Quezon City or the applicable International Commercial Terms (INCOTERMS) for this Project. |
| 14.1 | <p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:</p> <ul style="list-style-type: none"> a. The amount of not less than <i>Four Hundred Thousand Pesos (PhP400,000.00)</i>, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or b. The amount of not less than <i>One Million Pesos (PhP1,000,000.00)</i> if bid security is in Surety Bond. |
| 19.3 | <i>One (1) Lot</i> |
| 20.1 | <i>No further instruction.</i> |
| 21.1 | <i>No further instruction.</i> |

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract (SCC)**.

2. Advance Payment and Terms of Payment

2.1. Advance payment of the contract amount is provided under Annex “D” of the revised 2016 IRR of RA No. 9184.

2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

3. Performance Security

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC, Section VII (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

- 5.1 In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 5.2 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

Section V. Special Conditions of Contract

Special Conditions of Contract

| GCC Clause | |
|------------|--|
| 1 | <p>Delivery and Documents –</p> <p>For purposes of the Contract, “EXW,” “FOB,” “FCA,” “CIF,” “CIP,” “DDP” and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows:</p> <p><i>In case of Goods supplied from abroad, the delivery terms applicable to the Contract are DDP delivered to GPPB-TSO New Building at UP Compound, Commonwealth Avenue, Diliman, Quezon City. In accordance with INCOTERMS.”</i></p> <p><i>In case of Goods supplied from within the Philippines, the delivery terms applicable to this Contract are delivered to GPPB-TSO New Building at UP Compound, Commonwealth Avenue, Diliman, Quezon City. Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination.”</i></p> <p>Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements).</p> <p>For purposes of this Clause the Procuring Entity’s Representative at the Project Site is <i>Mr. Aaron Vinz Paul A. Crisologo</i>. <i>Delivery Schedule shall be coordinated to Mr. Crisologo through email at aacrisologo@gppb.gov.ph at least two working days before the intended delivery date.</i></p> <p>Incidental Services –</p> <p>The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements:</p> <ol style="list-style-type: none"> a. performance or supervision of on-site assembly and/or start-up of the supplied Goods; b. furnishing of tools required for assembly and/or maintenance of the supplied Goods; c. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and |
| | <p>The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.</p> |

| | |
|--|--|
| | <p>Spare Parts –</p> <p>The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:</p> <ol style="list-style-type: none"> 1. in the event of termination of production of the spare parts: <ol style="list-style-type: none"> i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested. |
| | <p>Packaging –</p> <p>The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods’ final destination and the absence of heavy handling facilities at all points in transit.</p> <p>The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity.</p> |
| | <p>A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging.</p> <p>Transportation –</p> <p>Where the Supplier is required under Contract to deliver the Goods CIF, CIP, or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.</p> |

| | Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the contract price. | | | | | | | | | | |
|--|--|---------------------|---|---|-----|--|-----|--|-----|--------------|--|
| | <p>The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination.</p> <p>Intellectual Property Rights –</p> <p>The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.</p> | | | | | | | | | | |
| | Regular and Recurring Services – <i>No further instruction.</i> | | | | | | | | | | |
| 2.2 | <p>The terms of payment shall be as follows:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 70%;">Deliverables</th> <th style="text-align: right;">% of Payments of Total Value of the Contract</th> </tr> </thead> <tbody> <tr> <td>1. Supply and Delivery of Equipment and submission of Work Plan</td> <td style="text-align: right;">15%</td> </tr> <tr> <td>2. Installation, Configuration, and System Programming, Testing, and Commission of Equipment and Issuance of Certificate of Completion</td> <td style="text-align: right;">45%</td> </tr> <tr> <td>3. Users Training and Issuance of Final Acceptance Certificate</td> <td style="text-align: right;">40%</td> </tr> <tr> <td style="text-align: right;">Total</td> <td></td> </tr> </tbody> </table> | Deliverables | % of Payments of Total Value of the Contract | 1. Supply and Delivery of Equipment and submission of Work Plan | 15% | 2. Installation, Configuration, and System Programming, Testing, and Commission of Equipment and Issuance of Certificate of Completion | 45% | 3. Users Training and Issuance of Final Acceptance Certificate | 40% | Total | |
| Deliverables | % of Payments of Total Value of the Contract | | | | | | | | | | |
| 1. Supply and Delivery of Equipment and submission of Work Plan | 15% | | | | | | | | | | |
| 2. Installation, Configuration, and System Programming, Testing, and Commission of Equipment and Issuance of Certificate of Completion | 45% | | | | | | | | | | |
| 3. Users Training and Issuance of Final Acceptance Certificate | 40% | | | | | | | | | | |
| Total | | | | | | | | | | | |
| 4 | Inspection shall be conducted within 7 working days from the date of completion of the project. The supplier shall rectify and/or replace any part that fail to pass any test/inspection or make alteration necessary to meet the specification. Correction of punch list is within 10 calendar days from the date of inspection. | | | | | | | | | | |

Section VI. Schedule of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

| Description | Delivered, Weeks/Months |
|--|---|
| Supply, delivery, installation, configuration, and commissioning of all equipment, hardware, and components, including technical training, inspection, correction of punch list, project documentation, and acceptance | Within 150 calendar days from receipt of the Notice to Proceed. |

I hereby verify to comply with all the above requirements.

Signature over printed name of the authorized representative

Company name

Date

Section VII. Technical Specifications

Technical Specifications

| Specification | Statement of Compliance |
|--|---|
| | <p><i>[Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder’s statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p> |
| Conformity with the SCOPE OF WORK (see attached Annex “A” Terms of Reference, Item 3.0) | |
| Conformity with the QUALIFICATION REQUIREMENTS (see attached Annex “A” Terms of Reference, Item 4.0) | |
| Conformity with the TECHNICAL REQUIREMENTS (see attached Annex “A” Terms of Reference, Item 5.0) | |
| Conformity with the BILL OF QUANTITIES (see attached Annex “A” Terms of Reference, Item 6.0) | |
| Conformity with the PROJECT DURATION (see attached Annex “A” Terms of Reference, Item 7.0) | |
| Conformity with the OTHER CONDITIONS (see attached | |

| | |
|--|--|
| <i>Annex "A" Terms of Reference, Item 9.0)</i> | |
| Conformity with the PAYMENT SCHEME/SCHEDULE (see attached Annex "A" Terms of Reference, Item 11.0) | |

I hereby verify to comply with all the above requirements.

Signature over printed name of the authorized representative

Company name

Date

Section VIII. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) **in accordance with Section 8.5.2 of the IRR;**

Technical Documents

- (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**
- (c) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid **which shall be supported by the End-User's Acceptance or Official Receipt or Sales Invoice issued for the contract,** except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**
- (d) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission **or** Original copy of Notarized Bid Securing Declaration; **and**
- (e) Conformity with the Schedule of Requirements; **and**
- (f) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or after-sales/parts; **and**
- i. Client Satisfactory Certificates from at least three (3) clients for the last three (3) years;**
- ii. Authority Certificate issued by the OEM to distribute, sell, install, service, and/or maintain the equipment;**
- iii. Manufacturer's un-amended sales literature (such as brochure and other similar reference materials), unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data., as appropriate of all the equipment being offered; and**
- iv. Any Eco Label Certification of equipment being offered;**
- (g) Original duly signed Omnibus Sworn Statement (OSS) **supported by either** (i) Original Notarized Secretary's Certificate in case of a corporation, partnership or cooperative **OR** (ii) Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the bidder, whichever is applicable.

Financial Documents

- (h) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC) **or** A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

Class “B” Documents

- (i) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence **or** duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

- (j) Original of duly signed and accomplished Financial Bid Form; **and**
- (k) Original of duly signed and accomplished Price Schedule(s).

Other documentary requirements under RA No. 9184 (as applicable)

- (l) *[For foreign bidders claiming by reason of their country’s extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.
- (m) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

TERMS OF REFERENCE
SUPPLY, DELIVERY, AND INSTALLATION OF AUDIO AND VIDEO EQUIPMENT
FOR THE GPPB-TSO BOARD ROOM, AUDITORIUM, TRAINING ROOMS, AND
MEETING ROOMS

1.0 BACKGROUND

The Government Procurement Policy Board – Technical Support Office (GPPB-TSO) is committed in providing the highest quality of services to its stakeholders. The GPPB-TSO's mandates include research-based procurement policy recommendations and rule drafting, development and updating of generic procurement manuals and standard bidding documents/forms, management and conduct of training on procurement systems and procedures, evaluation of the effectiveness of the government procurement system and recommendation of improvements in systems procedures, monitoring the compliance to the Act and assisting procuring entities improve their compliance, monitoring the effectiveness of the Government Electronic Procurement System (G-EPS), and Secretariat support.

To efficiently perform its functions, the GPPB-TSO requires audio and video equipment and conference system for the conduct of various meetings, consultations, trainings, forum, and summit both in face-to-face and online platforms. Thus, the GPPB-TSO, through the Information Management Division (IMD), intends to procure the audio and video equipment necessary in the GPPB-TSO boardroom, auditorium, training rooms, and meeting rooms.

The implementation of this project shall be at the new building of the GPPB-TSO located at UP Diliman Compound, Commonwealth Avenue (beside the Commission on Human Rights), Quezon City.

2.0 OBJECTIVE

This Project aims to provide audio and video equipment for the performance of the mandate and functions of the GPPB-TSO in providing administrative assistance to the meeting of the GPPB and in conducting capacity development, consultations, dialogues, summits, and forum.

3.0 SCOPE OF WORK

3.1. General Requirements

3.1.1. The Service Provider (SP) shall be responsible for the supply, delivery, installation, and configuration of all the audio and video equipment and peripherals for the boardroom, training and meeting rooms, and auditorium of the GPPB-TSO's new building.

3.1.2. The SP shall Install and configure all the hardware, audio and video equipment, devices, components, and peripherals for this

project, including all the necessary wiring, data cabling, and acoustic treatment (to reduce echo and reverberation) in the identified locations/rooms of the buildings.

3.1.3. The SP shall provide all the necessary equipment and perform all works as required under this Project. The SP shall also provide all other materials necessary for the successful implementation and completion of the project.

3.1.4. The SP shall be responsible for the testing of all equipment.

3.1.5. The SP shall provide a warranty of one (1) year for equipment and after sales support on-site services. The SP shall render the following support during the warranty period when needed:

3.1.5.1. The SP shall provide technical support which shall be provided, when requested, through onsite visits within regular working hours from Monday to Friday, 8:00 AM to 3:00 PM. Once trouble is encountered or needs technical assistance, the presence of the SP is required.

3.1.5.2. If the supplied equipment is found defective and needs to be pulled out, the SP shall provide a replacement with the same or higher specifications before actual pull-out of the malfunctioned unit.

3.1.5.3. The SP shall rectify and or/replace any part that fail to pass any test/inspection or make alteration necessary to meet the specification.

3.1.5.4. The SP shall be responsible and accountable for any damage caused solely by the service to the GPPB-TSO building as a direct result of the installation maintenance, and removal of any cabling components and devices.

3.1.5.5. The SP shall provide support and maintenance during the warranty period. The SP shall be responsible for all the costs related to the warranty period for hardware products.

3.2. Pre-Installation

The SP shall submit, within ten (10) calendar days upon receipt of the Notice to Proceed, a detailed work plan, including the lay-out design, to the GPPB-TSO for approval of the duly authorized representative of the GPPB-TSO, with schedule of activities, details of activities, and

monitoring tool as a reference of the GPPB-TSO in evaluating the work accomplishments and status of the implementation of the project.

3.3. Supply, Delivery, Installation, Configuration, and Commissioning

3.3.1. Supply, deliver, and install all the required equipment and works in accordance with the duly approved Work Plan and with the technical specifications required under this TOR.

3.3.2. The SP shall be responsible for the wiring and cabling necessary for the installation of equipment. The SP shall ensure proper wire tagging and grooming of all equipment connections.

3.3.3. The SP shall perform all necessary testing to ensure that all equipment is operational and working properly.

3.4. Post-Installation and Project Close-Out

3.4.1. The SP shall be responsible in correcting and completing all punch list works which may be noted during inspection.

3.4.2. The SP shall be responsible in the restoration of damages to property caused by installation and/or removal of cabling equipment and other procedures conducted during the installation.

3.4.3. The SP shall conduct technical training for at least five (5) days to the personnel of IMD of the GPPB-TSO on the basic operation, maintenance, and troubleshooting of the equipment and conference system.

3.4.4. The SP shall provide at least one (1) copy of the technical manual/documentation of all audio and video equipment printed in English (hard copy) and an electronic copy of the same.

3.4.5. The SP shall submit the Operation and Maintenance Manual of all delivered equipment.

3.4.6. The SP shall submit an As-Built Plan of the audio and video equipment system duly signed by a PECE.

4.0. QUALIFICATION REQUIREMENTS

4.1. The SP shall have completed projects related to supply, delivery, and installation, including configuration and commissioning, of audio and video equipment for conference room, training rooms, and auditorium for the past five (5) years prior to the opening of bids.

- 4.2. The SP shall have no record of service delay or unsatisfactory work performance from its government and private clients. Thus, the SP shall submit copies of Client Satisfactory Certificates from at least three (3) clients for the last three (3) years as part of its bid proposal. The GPPB-TSO Bids and Awards Committee shall conduct random verification and validation of the clients of the bidder during post-qualification evaluation.

- 4.3. The SP shall have a Project Manager and Technical Personnel with experience in successfully implementing and completing a project similar to the procurement of supply, delivery, and installation of audio and video equipment for conference room, training rooms, and/or auditorium. The SP shall submit the Curriculum Vitae of its Project Manager and Technical Personnel as part of the Work Plan in accordance with the requirements under Item 3.2., subject for evaluation of IMD.

- 4.4. The SP shall be an authorized direct distributor of the Original Equipment Manufacturer (OEM). Thus, the SP shall submit a copy of its authority certificate issued by the OEM to distribute, sell, install, service, and/or maintain the equipment in the Philippines as part of its bid proposal.
 - 4.4.1. The SP shall submit the manufacturer's un-amended sales literature (such as brochure and other similar reference materials), unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate of all the equipment being offered.

5.0. TECHNICAL REQUIREMENTS

- 5.1. Meeting Rooms 1, 2, and 3 (at least 16 pax/room) located at the 2nd floor of the building
 - 5.1.1. 75" Commercial 4K Smart UHD TV Display
 - 5.1.1.1. Number of CPUs: Quad
 - 5.1.1.2. BLU Type: Direct
 - 5.1.1.3. Type: 4K UHD
 - 5.1.1.4. Resolution: 3,840 X 2,160 (UHD)
 - 5.1.1.5. Screen Brightness (Set Type): 300 nit
 - 5.1.1.6. Connectivity: HDMI 2.0 (1 Rear, 2 Side), (HDMI-CEC), eARC (Audio Return Channel) (HDMI 2), USB (1 Rear, 1 Side), LAN (Rear), Composite In (AV) (Side, Phone Jack Type (India Only), RF In (Side, RF), SPDIF (Optical Digital Audio Out) (Rear), Wi-Fi, Bluetooth (V 5.0)
 - 5.1.1.7. Dynamic Tone Mapping: Yes

- 5.1.1.8. Picture Mode: 9 Modes (Vivid, Standard, Eco, Cinema, Sports, Game, Filmmaker, (ISF) Expert (Bright Room), (ISF) Expert (Dark Room)
- 5.1.1.9. Speaker (Sound Output): 20 W (10 W per Channel)
- 5.1.1.10. Audio Codec: AC4, AC3 Dolby Digital, EAC3, HE-AAC, AAC, MP2, MP3, PCM, WMA, apt-X

5.1.2. Ceiling Bracket for Smart TV

5.1.3. PTZ Camera

- 5.1.3.1. Video format/Resolution: 1080p 59.94/50/29.97/25; 1080i 59.94/50; 720p 59.94/50; 480i, 576i (on CVBS); Image Sensor: 1/2.8" type progressive scan CMOS sensor; Effective Pixels (approx.): 2.14 Mega pixels; S/N Ratio 50dB; Min. Illumination: Color : 0.4 lx, B/W : 0.03 lx (F1.6, 1/30 sec, 50IRE, Gain: High); Electronic Shutter: 1/25~1/1250 sec (50/25Hz), 1/30~1/1500 sec (59.94/29.97Hz); Zoom Ratio: 30x Optical Zoom; Gamma Control: Off / Normal / Standard Mode 1-4; Iris Control: Auto / Manual; Digital Noise Reductions; White Balance: AWB, MWB, One push WB, Outdoor, Indoor, Fluorescent; Focus Mode: Auto / Manual; Panning / Tilting Range: Pan: 270°, Tilt: +90° to -20°; Panning / Tilting Speed: Manual: 1~150°/Sec, Swing: 1~150°/Sec; Preset: 50 Position; Focal Length: f=4.3 mm (WIDE) to 129 mm (TELE), F1.6 to F4.7; Field of View: Approx. 63.7° (WIDE END) / 2.3° (TELE END); Image Compensation: Day & Night Function; Video Output: 3G-SDI x1, HDMI x1, CVBS x1; Tally LED: Dual color (Red, Green); Lens Filter: M52.0 x 0.75 Thread with UV Protection Control Protocol: VISCA, DVIP; Remote Control Interface: RS-422: Transmit up to 1000m, DVIP (RJ45): 100m Power: DC 12V 29W

5.1.4. SDI-USB Capturing Device

- 5.1.4.1. Input: 1x HD/3G-SDI
- 5.1.4.2. Output: 1x USB 3.0 (Micro B), 1x SDI loopthrough;
- 5.1.4.3. Input Video Bandwidth: 150MHz (pixel clock rate)
- 5.1.4.4. Output Video Bandwidth: Up to 350Mbps (USB)
- 5.1.4.5. Audio Input: SDI Embedded Audio & 3.5 mm stereo in
- 5.1.4.6. Audio Format: 2-Channel, 16-bit PCM
- 5.1.4.7. Capture Video Format: YUY2 (USB3.0), MJPG (USB2.0/3.0)
- 5.1.4.8. Firmware Update: Via USB Port

- 5.1.4.9. Supported OS: Windows10 (or above), OS X (10.10 or above), Linux Ubuntu 14.04
- 5.1.4.10. Power Supply: Via USB
- 5.1.4.11. Power Consumption: 3W

5.1.5. USB Patch Cord (1m)

5.1.6. Multimedia Projector

- 5.1.6.1. 6,000 ANSI Lumens
- 5.1.6.2. 2nd generation Laser Phosphor technology with a 20,000-hour lifespan
- 5.1.6.3. 0.81-0.89 short throw ratio for minimal space consumption
- 5.1.6.4. Wide HN lens shift, 360° projection & portrait mode for flexible installation
- 5.1.6.5. Dual HDMI 2.0b supporting 4K HDR/HLG content
- 5.1.6.6. Native Resolution: 1920x1200
- 5.1.6.7. Contrast Ratio: 3000000:1
- 5.1.6.8. Display Color: 1.07 billion Colors
- 5.1.6.9. Light Source Type: Laser Phosphor system
- 5.1.6.10. Light Source Life (hours) with Normal Mode: 20000
- 5.1.6.11. Light Source Life (hours) with SuperEco Mode: 30000(eco)
- 5.1.6.12. Lamp Watt: Nichia 74W x 2
- 5.1.6.13. Lens: F=1.83-1.86, f=8.6-9.4mm
- 5.1.6.14. Optical Zoom: 1.1x
- 5.1.6.15. Digital Zoom: 0.8x-2.0x
- 5.1.6.16. Image Size: 60"-200"
- 5.1.6.17. Throw Distance: 1.04-3.83m (100"@1.74m)
- 5.1.6.18. Keystone: H:±40° , V:±40°
- 5.1.6.19. Audible Noise (Normal): 36d
- 5.1.6.20. Input Lag: 16ms
- 5.1.6.21. Resolution Support: VGA (640 x 480) to 4K (3840 x 2160)
- 5.1.6.22. Input: Computer in (share with component): 1, Composite: 1, S-Video: 1, HDMI: 2 (HDMI 2.0, HDCP1.4/2.2), Audio-in (3.5mm): 1, Audio-in (RCA R/L): 1, 3D VESA (Sync): 1, HDBaseT: 1
- 5.1.6.23. Output: Monitor out: 1, Audio-out (3.5mm): 1, Speaker: 10W x 2, USB Type A (Power): 1 (5V/1.5A), 12V Trigger (3.5mm): 1,
- 5.1.6.24. Control: RS232 (DB 9-pin male): 1, RJ45 (LAN control): 1, USB Type A (Services): 1 (share with USB A Output)
- 5.1.6.25. Power Supply Voltage: 100-240V±10%, 50/60Hz (AC in)

5.1.6.26. Power Consumption: Normal 450W, Standby <0.5W

5.1.7. Motorized Projector Lift

- 5.1.7.1. Max Travel Distance: 600mm
- 5.1.7.2. Max Space for Projector: W:410mm x D:450mm
- 5.1.7.3. Max Weight Capacity: 15kg
- 5.1.7.4. Motor: Power Consumption: 110W, Voltage: Single Phase 230VAC 50Hz
- 5.1.7.5. Ultra slim structure
- 5.1.7.6. Mechanical limit switch automatically stop at show & store position
- 5.1.7.7. Universal projector mounting with pan & tilting kit
- 5.1.7.8. Full cable management

5.1.8. Projection Screen

- 5.1.8.1. Motorized
- 5.1.8.2. At least 6.75' x 12'

5.1.9. 4K/60 HDMI Wall Transmitter

- 5.1.9.1. HDMI wall plate twisted pair transmitter (support the distribution of HDMI over a shielded CATx cable)
- 5.1.9.2. HDMI video input for digital video signals with or without embedded audio
- 5.1.9.3. Support embedded digital audio on HDMI input
- 5.1.9.4. Compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI source
- 5.1.9.5. Support interconnection between transmitter and receiver
- 5.1.9.6. One RJ-45 twisted pair connection
- 5.1.9.7. Configurable for sending digital video and embedded audio to an HDBaseT-enabled display
- 5.1.9.8. Signal transmission distance capability of 100 meters for all supported video resolutions using a shielded CATx cable
- 5.1.9.9. Support computer and video resolutions up to 4K/60 at 4:4:4 chroma sampling
- 5.1.9.10. Support multiple embedded audio formats
- 5.1.9.11. Support EDID pass-through
- 5.1.9.12. HDCP 2.3 compliant with backward compatibility for earlier HDCP versions
- 5.1.9.13. Provide visual indication of signal presence and power status on front of wall plate

5.1.10. 4K/60 HDMI Receiver

- 5.1.10.1. HDMI twisted pair receiver that shall support the distribution of video, audio, and control over a shielded CATx cable
 - 5.1.10.2. Rack-mountable receiver for the extension of HDMI, audio, and control
 - 5.1.10.3. HDMI video output for digital video signals with or without embedded audio
 - 5.1.10.4. Support embedded digital audio on HDMI output
 - 5.1.10.5. Dedicated analog audio output connection
 - 5.1.10.6. Communication connections for AV device control
 - 5.1.10.7. Signal transmission distance capability of 100 meters for all supported video resolutions using a shielded CATx cable
 - 5.1.10.8. High Dynamic Range – HDR video
 - 5.1.10.9. Support computer and video resolutions up to 3840x2160/60 at 4:4:4 chroma sampling
 - 5.1.10.10. Support multiple embedded audio formats
 - 5.1.10.11. HDCP 2.3 compliant with backward compatibility for earlier HDCP versions
 - 5.1.10.12. Support bidirectional RS-232 communication pass-through up to 115200 baud
 - 5.1.10.13. USB configuration port on the front panel for data access and firmware updates
- 5.1.11. Wireless Presentation Device
 - 5.1.11.1. Maximum Output Resolution: Up to 4096x2160 at 60 fps HDMI 2.0
 - 5.1.11.2. Maximum Simultaneous Presenters on Screen: 8 simultaneous mirroring devices, each at 1080p 60fps.
 - 5.1.11.3. Can readily connect devices, no application is required to install or download on presentation devices
 - 5.1.11.4. No button or dongle is required for connection.
- 5.1.12. Digital Matrix Processors
 - 5.1.12.1. 12 input, 8 output audio digital matrix processor with digital audio expansion port, auto mixer function with eight groups, 64-bit floating point DSP engine, four input / four output USB audio interface, macros, 8x4 configurable aux inputs / outputs, 16 virtual processing loops, up to eight audio file players, ACP audio control panel support, and 24-bit/48 kHz audio converters
 - 5.1.12.2. Selectable +48-volt phantom power for condenser microphones on first eight inputs

- 5.1.12.3. Support twelve mono analog inputs that accept 3.5 mm captive screw connectors: Microphone level & Line level, balanced or unbalanced
- 5.1.12.4. Input gain adjustment from -18 dB to +80 dB in 0.1 dB steps, adjustable per input
- 5.1.12.5. Eight mono-line level, balanced or unbalanced outputs that accept 3.5 mm captive screw connectors
- 5.1.12.6. Output attenuation adjustment from 0 dB to -100 dB in 0.1 dB steps, adjustable per output
- 5.1.12.7. 52x44 mix matrix such that all inputs and returns can be discretely routed to any or all of the outputs or sends
- 5.1.12.8. Emulate mode for offline configuration
- 5.1.12.9. Can cut, copy, and paste editing between processing blocks
- 5.1.12.10. Setup and configuration of digital audio processing tools including, but not limited to: Filters (high pass, low pass, bass shelving, treble shelving, parametric, dynamic loudness, and notch EQ); Dynamics processing (AGC, Compressor, Limiter, Noise Gate);
- 5.1.12.11. Delay processing; Ducking and Adaptive Gain processing; Feedback Suppressor processing, Automixing; and multiple gain stages
- 5.1.12.12. 8 Aux Inputs (to be configured with a combination of file players and USB audio connections)
- 5.1.12.13. Digital audio expansion port (for bidirectional signal routing between two connected processors at sub-millisecond latency)
- 5.1.12.14. 8 sets of 3 configurable digital I/O ports that accept 3.5 mm captive screw connectors (can be programmed to sense and respond to external triggers)

- 5.1.13. Ceiling Speaker
 - 5.1.13.1. 8" full range transducer delivers up to 10W in either 70V or 100V mode using wiring taps on the transformer
 - 5.1.13.2. Transformer tap 2.5, 5, 10W
 - 5.1.13.3. 490, 1k, 2k Ohms input impedance
 - 5.1.13.4. 100 Hz ~ 20 kHz frequency response
 - 5.1.13.5. 98 dB SPL (1W/1m)
 - 5.1.13.6. Metal frame and metal grille
 - 5.1.13.7. Shallow depth
 - 5.1.13.8. Energy efficient and with any eco label certification

5.1.14. Power Amplifier

- 5.1.14.1. Compact mono amplifier with 200 watts RMS power output into a 70-volt line and Energy Star qualification or any eco label certification
- 5.1.14.2. 1 stereo or 2 mono, balanced or unbalanced signals on one 5-pole, 3.5 mm captive screw connector
- 5.1.14.3. Sum incoming left and right channels for mono amplification
- 5.1.14.4. 1 high impedance stereo speaker level signal on one 2-pole, 5 mm screw-lock captive screw connector
- 5.1.14.5. 200 watts rms output power into a 70 volt line measured at 1 kHz with less than 0.1% THD
- 5.1.14.6. Minimum load impedance of 25 ohms
- 5.1.14.7. Switch-selectable high pass filter for frequencies below 80 Hz with a 12 dB per octave rolloff
- 5.1.14.8. Class D amplifier design
- 5.1.14.9. Class D Ripple Suppression technology
- 5.1.14.10. Convection cooled and operate without fans or vents
- 5.1.14.11. Automatic clip limiter to detect onset of clipping by comparing input and output waveforms and automatically reduce gain without audible artifacts to eliminate clipping distortion
- 5.1.14.12. 45 watts during typical (1/8 power) operation
- 5.1.14.13. 12 watts during quiescent operation

5.1.15. Wireless Handheld Microphone

- 5.1.15.1. Handheld Transmitter: 1 mW or 10mW maximum RF output (country dependent) selected by a switch; 8 RF channels selected by a switch; on/off switch with power LED; operates on two rechargeable AA batteries for up to 5 to 10 hours.
- 5.1.15.2. With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger.
- 5.1.15.3. Diversity Receiver: 8 RF channels selected by a switch; balanced XLR mic level output - adjacent Mic/Line switch provides 20 dB of additional gain; unbalanced ¼" female phone jack instrument level output; squelch adjustment potentiometer; power LED, Audio LED; RF Antenna A LED, RF Antenna B LED; operates on 12 to 18 Vdc with an operating current draw of 130 mA

5.1.16. Wireless Lapel Microphone

- 5.1.16.1. UHF Analog Single-Channel Receiver

- 5.1.16.2. Frequency Range UHF 480 – 934 MHz (country dependent)
 - 5.1.16.3. Bandwidth 24 MHz
 - 5.1.16.4. Frequency Response 50 Hz – 18 kHz
 - 5.1.16.5. Dynamic Range > 106 dBA
 - 5.1.16.6. Audio Output Balanced: +16 dB / 0 dB / -6 dB, Unbalanced: +10 dB / 0 dB / -6 dB
 - 5.1.16.7. UHF Analog Bodypack Transmitter
 - 5.1.16.8. Display Backlit LCD on Bodypack transmitter
 - 5.1.16.9. AF Sensitivity Preset at 0 dB (equal to capsule sensitivity) 5 switchable levels: -12 dB to 12 dB bodypack transmitter
 - 5.1.16.10. Spurious Emission < 4 nW bodypack transmitter
 - 5.1.16.11. Omnidirectional Lavalier Microphone
 - 5.1.16.12. Capsule 4.5 Ø omnidirectional
 - 5.1.16.13. Maximum SPL 135 dB
 - 5.1.16.14. Cable Length 150 cm
 - 5.1.16.15. Transmitter: operates on two rechargeable AA batteries for up to 5 to 10 hours
 - 5.1.16.16. With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger.
- 5.1.17. Control Processor
- 5.1.17.1. 6 RS-232 ports on captive screw connectors located on the back of the processor (for unidirectional or bidirectional control of AV system components)
 - 5.1.17.2. 2 RS-232/RS-422/RS-485 ports on captive screw connectors located on the back of the processor (for unidirectional or bidirectional control of AV system components)
 - 5.1.17.3. 8 IR/Serial ports on captive screw connectors located on the back of the processor
 - 5.1.17.4. 8 low voltage relays on captive screw connectors
 - 5.1.17.5. 4 flex I/O ports on captive screw connectors located on the back of the processor (for analog inputs in addition to digital input or a digital output that can be used to interface with devices such as sensors, switches, LEDs, and relays)
 - 5.1.17.6. 1 eBUS port on a 4-pole captive screw connector located on the back of the control processor
 - 5.1.17.7. 4 independently switched 12-volt outputs on captive screw connectors
 - 5.1.17.8. Female RJ-45 jack located on the back of the enclosure that supports 10/100/1000Base-T, half/full duplex with auto-detect for connection to

- a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues
- 5.1.17.9. Can capture IR commands from handheld remotes
- 5.1.17.10. Web-based AV resource management application that provides a means to manage, monitor, and control AV equipment
- 5.1.17.11. at least 4.5 GB of nonvolatile memory with at least 4.2 GB available to the user
- 5.1.17.12. With License for User Interfaces (perpetual licens)
- 5.1.18. Wall Button Panel
 - 5.1.18.1. 10 fully customizable soft-touch, backlit buttons
 - 5.1.18.2. RJ-45 jack located on the back of the enclosure that supports 10/100Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues as well as supports PoE- Power over Ethernet, 802.3af
 - 5.1.18.3. multi-function button located below the faceplate on the left front side of the product that allows for the reset of the device or its communication properties at minimum
 - 5.1.18.4. SFTP and SSH for secure communication between the control processor and the configuration or programming soft
 - 5.1.18.5. web-based AV resource management application that provides a means to manage, monitor, and control AV equipment
- 5.1.19. Controller
 - 5.1.19.1. At least 3.5" LCD touchscreen that supports up to 262k colors and 320x480 resolution
 - 5.1.19.2. Mounted in either landscape or portrait orientations
 - 5.1.19.3. Scratch and smudge-resistant
 - 5.1.19.4. 1 mono speaker which can be configured to provide audio and button feedback
 - 5.1.19.5. RJ-45 jack located on the back of the enclosure that supports 10/100Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues as well as supports PoE- Power over Ethernet, 802.3af
 - 5.1.19.6. Single micro-USB 2.0 type B receptacle located on the back of the enclosure

- 5.1.19.7. Built-in motion sensor located on the top bezel of the touch surface allowing the panel to be woken from a sleep state or set up via software to trigger any number of actions
- 5.1.19.8. minimum: 1. SDRAM 1GB; 2. Flash 8 GB
- 5.1.19.9. controlled by an HTML5 and JavaScript enabled web browser, or an iOS or Android based device as a secondary point of control
- 5.1.19.10. SFTP and SSH for secure communication between the control processor and the configuration or programming software

- 5.1.20. IR Emitter
 - 5.1.20.1. Contains IR-emitting diode with a 10' (3 m) wire lead, IR emitter shield, and mounting adhesive
 - 5.1.20.2. Remotely control AV equipment via IR

- 5.1.21. 16-Port Gigabit PoE Switch
 - 5.1.21.1. Standards and Protocols: IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3af, IEEE 802.3at, IEEE 802.1q, IEEE 802.1p
 - 5.1.21.2. Interface: 16 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 2 Gigabit SFP Ports
 - 5.1.21.3. Network Media: 10BASE-T: UTP category 3, 4, 5 cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 100BASE-TX: UTP category 5, 5e cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 1000BASE-T: UTP category 5, 5e, 6 or above cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 1000BASE-X MMF, SMF
 - 5.1.21.4. Switching Capacity: 36 Gbps
 - 5.1.21.5. Packet Forwarding Rate: 23.8 Mbps
 - 5.1.21.6. Packet Buffer Memory: 4.1 Mbit

- 5.1.22. Wireless Access Point
 - 5.1.22.1. Interface: Gigabit Ethernet (RJ-45) Port *1 (Support IEEE802.3af PoE)
 - 5.1.22.2. Power Supply: 802.3af/at PoE, 24V Passive PoE (+4,5pins; -7,8pins. PoE Adapter Included)
 - 5.1.22.3. Antenna Type: 2.4GHz: 2* 4dBi, 5GHz: 2*4dBi
 - 5.1.22.4. Wireless Standards: IEEE 802.11ac/n/g/b/a
 - 5.1.22.5. Frequency: 2.4GHz and 5GHz
 - 5.1.22.6. Signal Rate: 5GHz:Up to 867Mbps, 2.4GHz:Up to 300Mbps
 - 5.1.22.7. Multiple SSIDs (Up to 16 SSIDs, 8 for each band)

- 5.1.23. Power Controller
 - 5.1.23.1. Material: Metal, plastic
 - 5.1.23.2. Frequency: 50/60Hz
 - 5.1.23.3. Current Load: 25A
 - 5.1.23.4. Load Voltage: AC 24-480V
 - 5.1.23.5. Voltage Control: DC 3-32V

- 5.1.24. Equipment Rack
 - 5.1.24.1. 5ft with casters, door, lock and power strip
 - 5.1.24.2. Top cover with 2 fans and cable access
 - 5.1.24.3. Detachable side cover with snaplock, camlock
 - 5.1.24.4. Plexiglass (smoked) front with lock
 - 5.1.24.5. Powerstrip
 - 5.1.24.6. 4x Caster Wheels & Footings with bottom cover
 - 5.1.24.7. 2x cable manager (ring type)
 - 5.1.24.8. 2x e-tray RUx16"
 - 5.1.24.9. With Bolts and Nuts
 - 5.1.24.10. Powder Coated Finish- Charcoal Gray/Black

5.2. Training Rooms 1, 2, 3 and 4 (at least 40 pax /room) located at the 5th Floor of the Building

- 5.2.1. Monitor Display
 - 5.2.1.1. 86" with 3840 x 2160 resolution
 - 5.2.1.2. Direct LED and 10-bit processing
 - 5.2.1.3. HDR 10, HLG and 4K Upscaler
 - 5.2.1.4. 9 picture modes and 6 HDR picture modes
 - 5.2.1.5. MPEG-2/4 DVB-T2 (Single)
 - 5.2.1.6. Photo Playback Formats
JPEG/PNG/BMP/AVIF/HEIC/HEIF
 - 5.2.1.7. Music Playback Formats
MP3/WAV/WMA/OGG/FLAC
 - 5.2.1.8. Video Playback Formats ASF/WMV/AVI (Xvid, H.264/AVC)/MP4/M4v/ MOV (H.264, H.265, MPEG-4, HEVC, AV1), AV1/ MKV (MPEG-2, MPEG-4, H.264, H.265, VP8, VP9, HEVC, AV1) TS/TRP/TP/MTS/MPG/3GP/3G2/ MPEG/DAT/VOB/HEVC (Up to 3840x2160 @ 120p) / AV1 (Up to 3840x2160 @ 60p)
 - 5.2.1.9. Wi-Fi-5 (802.11ac)
 - 5.2.1.10. 20W audio output
 - 5.2.1.11. Audio Decoder HE-AAC, AAC, MP2, MP3, PCM, WMA, apt-X, LPCM, MPEG-1, AC3 (Dolby Digital), EAC3 (DolbyDigital+)
 - 5.2.1.12. Bluetooth

- 5.2.1.13. 4x HDMI, 2x USB, 1x RF Antenna Input, 1x Digital (Optical) Audio Output and 1x LAN port
 - 5.2.1.14. Energy efficient and with Energy Star Rating of at least 4 Stars
- 5.2.2. Mobile TV Stand
- 5.2.2.1. Height adjustable TV mount
 - 5.2.2.2. Quick-Release Spring Lock
 - 5.2.2.3. Free-Tilting Design
 - 5.2.2.4. Quick Assembly Shelf
 - 5.2.2.5. Heavy-Duty Casters
 - 5.2.2.6. Cable Management
 - 5.2.2.7. Fit to TV Screen Size: up to 100
 - 5.2.2.8. Weight Capacity: 100kg / 200lbs
 - 5.2.2.9. Tilt Range: +5° ~ -10°
 - 5.2.2.10. Color: Matte Black
- 5.2.3. PTZ Camera for hybrid training set-up (online and face-to-face)
- 5.2.3.1. Video format/Resolution: 1080p 59.94/50/29.97/25; 1080i 59.94/50; 720p 59.94/50; 480i, 576i (on CVBS)
 - 5.2.3.2. Image Sensor: 1/2.8" type progressive scan CMOS sensor
 - 5.2.3.3. Effective Pixels (approx.): 2.14 Mega pixels; S/N Ratio 50dB;
 - 5.2.3.4. Min. Illumination: Color : 0.4 lx, B/W : 0.03 lx (F1.6, 1/30 sec, 50IRE, Gain: High)
 - 5.2.3.5. Electronic Shutter: 1/25~1/1250 sec (50/25Hz), 1/30~1/1500 sec (59.94/29.97Hz)
 - 5.2.3.6. Zoom Ratio: 30x Optical Zoom; Gamma Control: Off / Normal / Standard Mode 1-4
 - 5.2.3.7. Iris Control: Auto / Manual
 - 5.2.3.8. With digital noise reductions
 - 5.2.3.9. White Balance: AWB, MWB, One push WB, Outdoor, Indoor, Fluorescent
 - 5.2.3.10. Focus Mode: Auto / Manual
 - 5.2.3.11. Panning / Tilting Range: Pan: 270°, Tilt: +90° to -20°
 - 5.2.3.12. Panning / Tilting Speed: Manual: 1~150°/Sec, Swing: 1~150°/Sec
 - 5.2.3.13. Preset: 50 Position
 - 5.2.3.14. Focal Length: f=4.3 mm (WIDE) to 129 mm (TELE), F1.6 to F4.7; Field of View: Approx. 63.7° (WIDE END) / 2.3° (TELE END)
 - 5.2.3.15. Image Compensation: Day & Night Function
 - 5.2.3.16. Video Output: 3G-SDI x1, HDMI x1, CVBS x1

- 5.2.3.17. Tally LED: Dual color (Red, Green)
- 5.2.3.18. Lens Filter: M52.0 x 0.75
- 5.2.3.19. Thread with UV Protection Control Protocol: VISCA, DVIP
- 5.2.3.20. Remote Control Interface: RS-422
- 5.2.3.21. Transmit up to 1000m, DVIP (RJ45): 100m
- 5.2.3.22. Power: DC 12V 29W

- 5.2.4. SDI-USB Capturing Device
 - 5.2.4.1. Input: 1x HD/3G-SDI
 - 5.2.4.2. Output: 1x USB 3.0 (Micro B), 1x SDI loop through
 - 5.2.4.3. Input Video Bandwidth: 150MHz (pixel clock rate)
 - 5.2.4.4. Output Video Bandwidth: Up to 350Mbps (USB)
 - 5.2.4.5. Audio Input: SDI Embedded Audio & 3.5 mm stereo in
 - 5.2.4.6. Audio Format: 2-Channel, 16-bit PCM
 - 5.2.4.7. Capture Video Format: YUY2 (USB3.0), MJPG (USB2.0/3.0)
 - 5.2.4.8. Firmware Update: Via USB Port
 - 5.2.4.9. Supported OS: Windows10 (or above), OS X (10.10 or above), Linux Ubuntu 14.04
 - 5.2.4.10. Power Supply: via USB
 - 5.2.4.11. Power Consumption: 3W (max)

- 5.2.5. USB Patch Cord (1m)

- 5.2.6. Matrix Switcher
 - 5.2.6.1. Compatible with HDMI video and embedded digital audio signal
 - 5.2.6.2. Local direct device connection compatible
 - 5.2.6.3. With digital backplane with a data rate of 18 Gbps
 - 5.2.6.4. Can support computer and video resolutions with 4:4:4 chroma sampling up to 4096x2160 at 60 Hz
 - 5.2.6.5. 8 female HDMI Type A connectors video input for digital video signals with embedded audio
 - 5.2.6.6. Automatic input cable equalization for signals up to 4096x2160/60 with 8-bit color depth
 - 5.2.6.7. 8 female HDMI Type A connectors video output for digital video signals with or without embedded audio
 - 5.2.6.8. Automatic reformatting of HDMI source signals when routed to a DVI display device
 - 5.2.6.9. 8 female HDMI Type A connectors audio output for embedded two-channel audio – shared with video signal
 - 5.2.6.10. 2 five-pole captive screw connectors output for analog audio

- 5.2.6.11. 2 RCA connectors output for S/PDIF digital audio
- 5.2.6.12. Can support audio de-embedding from HDMI signal
- 5.2.6.13. Audio assignment from any HDMI input source to analog and S/PDIF output 2
- 5.2.6.14. Audio extraction to analog audio outputs; 1. Balanced; 2. Unbalanced
- 5.2.6.15. HDCP 2.3 compliant
- 5.2.6.16. Three-pole captive screw RS-232 connector on the rear panel for control
- 5.2.6.17. Has proactive monitoring, management, and control over a LAN, WAN, or the Internet using standard TCP/IP protocols
- 5.2.6.18. +5 VDC, 250 mA power on each output for external peripheral devices
- 5.2.6.19. Control/configure with programming for Microsoft, Windows, Telnet, and basic ASCII code commands

- 5.2.7. 4K/60 HDMI Wall Transmitter
 - 5.2.7.1. HDMI wall plate twisted pair transmitter (support the distribution of HDMI over a shielded CATx cable)
 - 5.2.7.2. HDMI video input for digital video signals with or without embedded audio
 - 5.2.7.3. Support embedded digital audio on HDMI input
 - 5.2.7.4. Compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI source
 - 5.2.7.5. Support interconnection between transmitter and receiver
 - 5.2.7.6. One RJ-45 twisted pair connection
 - 5.2.7.7. Configurable for sending digital video and embedded audio to an HDBaseT-enabled display
 - 5.2.7.8. Signal transmission distance capability of 100 meters for all supported video resolutions using a shielded CATx cable
 - 5.2.7.9. Support computer and video resolutions up to 4K/60 at 4:4:4 chroma sampling
 - 5.2.7.10. Support multiple embedded audio formats
 - 5.2.7.11. Support EDID pass-through
 - 5.2.7.12. HDCP 2.3 compliant with backward compatibility for earlier HDCP versions
 - 5.2.7.13. Provide visual indication of signal presence and power status on front of wall plate

- 5.2.8. 4K/60 HDMI Receiver

- 5.2.8.1. HDMI twisted pair receiver that shall support the distribution of video, audio, and control over a shielded CATx cable
- 5.2.8.2. Rack-mountable receiver for the extension of HDMI, audio, and control
- 5.2.8.3. HDMI video output for digital video signals with or without embedded audio
- 5.2.8.4. Support embedded digital audio on HDMI output
- 5.2.8.5. Dedicated analog audio output connection
- 5.2.8.6. Communication connections for AV device control
- 5.2.8.7. Signal transmission distance capability of 100 meters for all supported video resolutions using a shielded CATx cable
- 5.2.8.8. High Dynamic Range – HDR video
- 5.2.8.9. Support computer and video resolutions up to 3840x2160/60 at 4:4:4 chroma sampling
- 5.2.8.10. Support multiple embedded audio formats
- 5.2.8.11. HDCP 2.3 compliant with backward compatibility for earlier HDCP versions
- 5.2.8.12. Support bidirectional RS-232 communication pass-through up to 115200 baud
- 5.2.8.13. USB configuration port on the front panel for data access and firmware updates
- 5.2.9. HDMI Transmitter
 - 5.2.9.1. Rack-mountable transmitter for the transmission of HDMI, audio, and control
 - 5.2.9.2. Video input for digital video signals; Supported HDMI specifications include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through
 - 5.2.9.3. Embedded digital audio on HDMI input
 - 5.2.9.4. Dedicated analog audio input connection; one stereo analog audio
 - 5.2.9.5. Communication connections for AV device control; One bidirectional RS-232 pass-through & One bidirectional IR pass-through
 - 5.2.9.6. Signal transmission distance capability of 70 m at 1920x1200, including 1080p @ 60 Hz and 2K using a shielded CATx cable
 - 5.2.9.7. Signal transmission distance capability of 4K @ 30 Hz, UHD, and 2560x1600 up to 40 m using a shielded CATx cable
 - 5.2.9.8. Computer and video resolutions up to 4K, including 1080p/60 Deep Color

- 5.2.9.9. HDCP 2.3 compliant with backward compatibility with earlier HDCP versions
- 5.2.10. HDMI Receiver
 - 5.2.10.1. Receives HDMI plus control and analog audio up to 70 meters over a shielded CATx cable
 - 5.2.10.2. Input: 1 twisted pair input on RJ-45
 - 5.2.10.3. Outputs: HDMI, stereo audio on captive screw
 - 5.2.10.4. computer and video resolutions up to 4K
 - 5.2.10.5. HDCP 2.3 compliant
 - 5.2.10.6. Accepts additional analog stereo audio signals
 - 5.2.10.7. Bidirectional RS-232 and IR pass-through for AV device control
 - 5.2.10.8. Wall mounted
 - 5.2.10.9. LED indicator (signal presence and power)
- 5.2.11. Wireless Presentation Device
 - 5.2.11.1. Maximum Output Resolution: Up to 4096x2160 at 60 fps HDMI 2.0
 - 5.2.11.2. Maximum Simultaneous Presenters on Screen: 8 simultaneous mirroring devices, each at 1080p 60fps.
 - 5.2.11.3. Can readily connect devices, no application is required to install or download on presentation devices
 - 5.2.11.4. No button or dongle is required for connection
- 5.2.12. Digital Matrix Processors
 - 5.2.12.1. 12 input, 8 output audio digital matrix processor with digital audio expansion port, auto mixer function with eight groups, four input / four output USB audio interface, macros, 8x4 configurable aux inputs / outputs, 16 virtual processing loops, up to eight audio file players, ACP audio control panel support, and 24-bit/48 kHz audio converters
 - 5.2.12.2. Selectable +48-volt phantom power for condenser microphones on first eight inputs
 - 5.2.12.3. Support twelve mono analog inputs that accept 3.5 mm captive screw connectors: Microphone level & Line level, balanced or unbalanced
 - 5.2.12.4. Input gain adjustment from -18 dB to +80 dB in 0.1 dB steps, adjustable per input
 - 5.2.12.5. Eight mono-line level, balanced or unbalanced outputs that accept 3.5 mm captive screw connectors
 - 5.2.12.6. Output attenuation adjustment from 0 dB to -100 dB in 0.1 dB steps, adjustable per output

- 5.2.12.7. 52x44 mix matrix such that all inputs and returns can be discretely routed to any or all of the outputs or sends
- 5.2.12.8. Emulate mode for offline configuration
- 5.2.12.9. Can cut, copy, and paste editing between processing blocks
- 5.2.12.10. Setup and configuration of digital audio processing tools including, but not limited to: Filters (high pass, low pass, bass shelving, treble shelving, parametric, dynamic loudness, and notch EQ); Dynamics processing (AGC, Compressor, Limiter, Noise Gate);
- 5.2.12.11. Delay processing; Ducking and Adaptive Gain processing; Feedback Suppressor processing, Automixing; and multiple gain stages
- 5.2.12.12. 8 Aux Inputs (to be configured with a combination of file players and USB audio connections)
- 5.2.12.13. Digital audio expansion port (for bidirectional signal routing between two connected processors at sub-millisecond latency)
- 5.2.12.14. 8 sets of 3 configurable digital I/O ports that accept 3.5 mm captive screw connectors (can be programmed to sense and respond to external triggers)

- 5.2.13. Ceiling Speaker
 - 5.2.13.1. 8" full range transducer delivers up to 10W in either 70V or 100V mode using wiring taps on the transformer
 - 5.2.13.2. Transformer tap 2.5, 5, 10W
 - 5.2.13.3. 490, 1k, 2k Ohms input impedance
 - 5.2.13.4. 100 Hz ~ 20 kHz frequency response
 - 5.2.13.5. 98 dB SPL (1W/1m)
 - 5.2.13.6. Metal frame and metal grille
 - 5.2.13.7. Shallow depth

- 5.2.14. Power Amplifier
 - 5.2.14.1. Compact mono amplifier with 200 watts RMS power output into a 70-volt line and Energy Star qualification or any eco label certification
 - 5.2.14.2. 1 stereo or 2 mono, balanced or unbalanced signals on one 5-pole, 3.5 mm captive screw connector
 - 5.2.14.3. Sum incoming left and right channels for mono amplification
 - 5.2.14.4. 1 high impedance stereo speaker level signal on one 2-pole, 5 mm screw-lock captive screw connector

- 5.2.14.5. 200 watts rms output power into a 70 volt line measured at 1 kHz with less than 0.1% THD
 - 5.2.14.6. Minimum load impedance of 25 ohms
 - 5.2.14.7. Switch-selectable high pass filter for frequencies below 80 Hz with a 12 dB per octave rolloff
 - 5.2.14.8. Class D amplifier design
 - 5.2.14.9. Class D Ripple Suppression technology
 - 5.2.14.10. Convection cooled and operate without fans or vents
 - 5.2.14.11. Automatic clip limiter to detect onset of clipping by comparing input and output waveforms and automatically reduce gain without audible artifacts to eliminate clipping distortion
 - 5.2.14.12. 45 watts during typical (1/8 power) operation
 - 5.2.14.13. 12 watts during quiescent operation
- 5.2.15. Wireless Handheld Microphone with Stand
- 5.2.15.1. 12 compatible systems per frequency band
 - 5.2.15.2. 1/4" and XLR audio outputs
 - 5.2.15.3. 2 color audio status indicator LED
 - 5.2.15.4. Wireless handheld transmitter with Power and battery status LED, Adjustable gain control, Quick & easy frequency matching & 300 feet (91 m) operating range (line of sight)
 - 5.2.15.5. Audio Range 50 – 15,000 Hz
 - 5.2.15.6. Break-resistant Microphone Clip
 - 5.2.15.7. Dynamic Range 100 dB A-weighted
 - 5.2.15.8. Maximum Output Level -27 dBV (XLR, mic level), -13 dBV (1/4")
 - 5.2.15.9. Transmitter: operates on two rechargeable AA batteries for up to 5 to 10 hours
 - 5.2.15.10. With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger
 - 5.2.15.11. Microphone Stand - Boom Mic Stand with boom length at 30" max; Tripod type with base spread at 23"; Adjustable height, from 32" to 61.5"; Adjustable angle; Can be easily fold in and out packing and setting-up; Non-slip rubber feet with grooves; Color black; With microphone holder or clip
- 5.2.16. Wireless Lapel Microphone
- 5.2.16.1. 12 compatible systems per frequency band
 - 5.2.16.2. 1/4" and XLR audio outputs
 - 5.2.16.3. 2 color audio status indicator LED
 - 5.2.16.4. Wireless body pack transmitter with Power and battery status LED, Adjustable gain control, Quick

- & easy frequency matching & 300 feet (91 m) operating range (line of sight)
 - 5.2.16.5. Lavalier microphone
 - 5.2.16.6. Tie Clip and Windscreen
 - 5.2.16.7. Battery Life Up to 14 hours
 - 5.2.16.8. System Distortion: 0.5% THD typical (ref. +/- 38 kHz deviation, 1 kHz tone)
 - 5.2.16.9. Transmitter: operates on two rechargeable AA batteries for up to 5 to 10 hours
 - 5.2.16.10. With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger
- 5.2.17. Control Processor
- 5.2.17.1. 6 RS-232 ports on captive screw connectors located on the back of the processor (for unidirectional or bidirectional control of AV system components)
 - 5.2.17.2. 2 RS-232/RS-422/RS-485 ports on captive screw connectors located on the back of the processor (for unidirectional or bidirectional control of AV system components)
 - 5.2.17.3. 8 IR/Serial ports on captive screw connectors located on the back of the processor
 - 5.2.17.4. 8 low voltage relays on captive screw connectors
 - 5.2.17.5. 4 flex I/O ports on captive screw connectors located on the back of the processor (for analog inputs in addition to digital input or a digital output that can be used to interface with devices such as sensors, switches, LEDs, and relays)
 - 5.2.17.6. 1 eBUS port on a 4-pole captive screw connector located on the back of the control processor
 - 5.2.17.7. 4 independently switched 12-volt outputs on captive screw connectors
 - 5.2.17.8. Female RJ-45 jack located on the back of the enclosure that supports 10/100/1000Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues
 - 5.2.17.9. Can capture IR commands from handheld remotes
 - 5.2.17.10. Web-based AV resource management application that provides a means to manage, monitor, and control AV equipment
 - 5.2.17.11. at least 4.5 GB of nonvolatile memory with at least 4.2 GB available to the user

- 5.2.17.12. include License for User Interfaces (perpetual license)
- 5.2.18. Wall Button Panel
 - 5.2.18.1. 10 fully customizable soft-touch, backlit buttons
 - 5.2.18.2. RJ-45 jack located on the back of the enclosure that supports 10/100Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues as well as supports PoE- Power over Ethernet, 802.3af
 - 5.2.18.3. multi-function button located below the faceplate on the left front side of the product that allows for the reset of the device or its communication properties at minimum
 - 5.2.18.4. SFTP and SSH for secure communication between the control processor and the configuration or programming soft
 - 5.2.18.5. web-based AV resource management application that provides a means to manage, monitor, and control AV equipment
- 5.2.19. Controller
 - 5.2.19.1. 3.5" LCD touchscreen that supports up to 262k colors and 320x480 resolution
 - 5.2.19.2. Mounted in either landscape or portrait orientation
 - 5.2.19.3. Scratch and smudge-resistant
 - 5.2.19.4. 1 mono speaker which can be configured to provide audio and button feedback
 - 5.2.19.5. RJ-45 jack located on the back of the enclosure that supports 10/100Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues as well as supports PoE- Power over Ethernet, 802.3af
 - 5.2.19.6. Single micro-USB 2.0 type B receptacle located on the back of the enclosure
 - 5.2.19.7. Built-in motion sensor located on the top bezel of the touch surface allowing the panel to be woken from a sleep state or set up via software to trigger any number of actions
 - 5.2.19.8. minimum: 1. SDRAM 1GB; 2. Flash 8 GB
 - 5.2.19.9. controlled by an HTML5 and JavaScript enabled web browser, or an iOS or Android based device as a secondary point of control

- 5.2.19.10. SFTP and SSH for secure communication between the control processor and the configuration or programming software
- 5.2.20. IR Emitter
 - 5.2.20.1. Contains IR-emitting diode with a 10' (3 m) wire lead, IR emitter shield, and mounting adhesive
 - 5.2.20.2. Remotely control AV equipment via IR
- 5.2.21. 16-Port Gigabit PoE Switch
 - 5.2.21.1. Standards and Protocols: IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3af, IEEE 802.3at, IEEE 802.1q, IEEE 802.1p
 - 5.2.21.2. Interface: 16 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 2 Gigabit SFP Ports
 - 5.2.21.3. Network Media: 10BASE-T: UTP category 3, 4, 5 cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 100BASE-TX: UTP category 5, 5e cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 1000BASE-T: UTP category 5, 5e, 6 or above cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 1000BASE-X MMF, SMF
 - 5.2.21.4. Switching Capacity: 36 Gbps
 - 5.2.21.5. Packet Forwarding Rate: 23.8 Mbps
 - 5.2.21.6. Packet Buffer Memory: 4.1 Mbit
- 5.2.22. Wireless Access Point
 - 5.2.22.1. Interface: Gigabit Ethernet (RJ-45) Port *1 (Support IEEE802.3af PoE)
 - 5.2.22.2. Power Supply: 802.3af/at PoE, 24V Passive PoE (+4,5pins; -7,8pins. PoE Adapter Included)
 - 5.2.22.3. Antenna Type: 2.4GHz: 2* 4dBi, 5GHz: 2*4dBi
 - 5.2.22.4. Wireless Standards: IEEE 802.11ac/n/g/b/a
 - 5.2.22.5. Frequency: 2.4GHz and 5GHz
 - 5.2.22.6. Signal Rate: 5GHz:Up to 867Mbps, 2.4GHz:Up to 300Mbps
 - 5.2.22.7. Multiple SSIDs (Up to 16 SSIDs, 8 for each band)
- 5.2.23. Power Controller
 - 5.2.23.1. Material: Metal, plastic
 - 5.2.23.2. Frequency: 50/60Hz
 - 5.2.23.3. Current Load: 25A
 - 5.2.23.4. Load Voltage: AC 24-480V
 - 5.2.23.5. Voltage Control: DC 3-32V
- 5.2.24. Equipment Rack

- 5.2.24.1. 5ft with casters, door, lock and power strip
- 5.2.24.2. Top cover with 2 fans and cable access
- 5.2.24.3. Detachable side cover with snaplock, camlock
- 5.2.24.4. Plexiglass(smoked) front with lock
- 5.2.24.5. Powerstrip
- 5.2.24.6. 4x Caster Wheels & Footings with bottom cover
- 5.2.24.7. 2x cable manager (ring type)
- 5.2.24.8. 2x E-tray RUx16"
- 5.2.24.9. With Bolts and Nuts
- 5.2.24.10. Powder Coated Finish- Charcoal Gray/Black

5.3. Training Room 5 (at least 35 Pax) located at the 5th Floor of the building

5.3.1. Monitor Display

- 5.3.1.1. 86" with 3840 x 2160 resolution
- 5.3.1.2. Direct LED and 10-bit processing
- 5.3.1.3. HDR 10, HLG and 4K Upscaler
- 5.3.1.4. 9 picture modes and 6 HDR picture modes
- 5.3.1.5. MPEG-2/4 DVB-T2 (Single)
- 5.3.1.6. Photo Playback Formats jpeg/ png/ bmp/ avif/ heic/ heif
- 5.3.1.7. Music Playback Formats mp3/wav/wma/ogg/flac
- 5.3.1.8. Video Playback Formats ASF/WMV/AVI (Xvid, H.264/AVC)/MP4/M4v/ MOV (H.264, H.265, MPEG-4, HEVC, AV1), AV1/ MKV (MPEG-2, MPEG-4, H.264, H.265, VP8, VP9, HEVC, AV1) TS/TRP/TP/MTS/MPG/3GP/3G2/ MPEG/DAT/VOB/HEVC (Up to 3840x2160 @ 120p) / AV1 (Up to 3840x2160 @ 60p)
- 5.3.1.9. Wi-Fi-5 (802.11ac)
- 5.3.1.10. 20W audio output
- 5.3.1.11. Audio Decoder HE-AAC, AAC, MP2, MP3, PCM, WMA, apt-X, LPCM, MPEG-1, AC3 (Dolby Digital), EAC3 (DolbyDigital+)
- 5.3.1.12. Bluetooth
- 5.3.1.13. 4x HDMI, 2x USB, 1x RF Antenna Input, 1x Digital (Optical) Audio Output and 1x LAN port
- 5.3.1.14. Energy efficient and with Energy Star Rating of at least 4 Stars

5.3.2. Mobile TV Stand

- 5.3.2.1. Height adjustable TV mount
- 5.3.2.2. Quick-Release Spring Lock
- 5.3.2.3. Free-Tilting Design
- 5.3.2.4. Quick Assembly Shelf
- 5.3.2.5. Heavy-Duty Casters
- 5.3.2.6. Cable Management
- 5.3.2.7. Fit to TV Screen Size: up to 100

- 5.3.2.8. Weight Capacity: 100kg / 200lbs
- 5.3.2.9. Tilt Range: +5° ~ -10°
- 5.3.2.10. Color: Matte Black

- 5.3.3. 4K/60 HDMI Wall Transmitter
 - 5.3.3.1. HDMI wall plate twisted pair transmitter (support the distribution of HDMI over a shielded CATx cable)
 - 5.3.3.2. HDMI video input for digital video signals with or without embedded audio
 - 5.3.3.3. Support embedded digital audio on HDMI input
 - 5.3.3.4. Compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI source
 - 5.3.3.5. Support interconnection between transmitter and receiver
 - 5.3.3.6. One RJ-45 twisted pair connection
 - 5.3.3.7. Configurable for sending digital video and embedded audio to an HDBaseT-enabled display
 - 5.3.3.8. Signal transmission distance capability of 100 meters for all supported video resolutions using a shielded CATx cable
 - 5.3.3.9. Support computer and video resolutions up to 4K/60 at 4:4:4 chroma sampling
 - 5.3.3.10. Support multiple embedded audio formats
 - 5.3.3.11. Support EDID pass-through
 - 5.3.3.12. HDCP 2.3 compliant with backward compatibility for earlier HDCP versions
 - 5.3.3.13. Provide visual indication of signal presence and power status on front of wallplate

- 5.3.4. 4K/60 HDMI Receiver
 - 5.3.4.1. HDMI twisted pair receiver that shall support the distribution of video, audio, and control over a shielded CATx cable
 - 5.3.4.2. Rack-mountable receiver for the extension of HDMI, audio, and control
 - 5.3.4.3. HDMI video output for digital video signals with or without embedded audio
 - 5.3.4.4. Support embedded digital audio on HDMI output
 - 5.3.4.5. Dedicated analog audio output connection
 - 5.3.4.6. Communication connections for AV device control
 - 5.3.4.7. Signal transmission distance capability of 100 meters for all supported video resolutions using a shielded CATx cable
 - 5.3.4.8. High Dynamic Range – HDR video
 - 5.3.4.9. Support computer and video resolutions up to 3840x2160/60 at 4:4:4 chroma sampling

- 5.3.4.10. Support multiple embedded audio formats
 - 5.3.4.11. HDCP 2.3 compliant with backward compatibility for earlier HDCP versions
 - 5.3.4.12. Support bidirectional RS-232 communication pass-through up to 115200 baud
 - 5.3.4.13. USB configuration port on the front panel for data access and firmware updates
- 5.3.5. HDMI Transmitter
- 5.3.5.1. Rack-mountable transmitter for the transmission of HDMI, audio, and control
 - 5.3.5.2. Video input for digital video signals; Supported HDMI specifications include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through
 - 5.3.5.3. Embedded digital audio on HDMI input
 - 5.3.5.4. Dedicated analog audio input connection; one stereo analog audio
 - 5.3.5.5. Communication connections for AV device control; One bidirectional RS-232 pass-through & One bidirectional IR pass-through
 - 5.3.5.6. Signal transmission distance capability of 70 m at 1920x1200, including 1080p @ 60 Hz and 2K using a shielded CATx cable
 - 5.3.5.7. Signal transmission distance capability of 4K @ 30 Hz, UHD, and 2560x1600 up to 40 m using a shielded CATx cable
 - 5.3.5.8. Computer and video resolutions up to 4K, including 1080p/60 Deep Color
 - 5.3.5.9. HDCP 2.3 compliant with backward compatibility with earlier HDCP versions
- 5.3.6. HDMI Receiver
- 5.3.6.1. Receives HDMI plus control and analog audio up to 70 meters over a shielded CATx cable
 - 5.3.6.2. Input: 1 twisted pair input on RJ-45
 - 5.3.6.3. Outputs: HDMI, stereo audio on captive screw
 - 5.3.6.4. computer and video resolutions up to 4K
 - 5.3.6.5. HDCP 2.3 compliant
 - 5.3.6.6. Accepts additional analog stereo audio signals
 - 5.3.6.7. Bidirectional RS-232 and IR pass-through for AV device control
 - 5.3.6.8. Wall mounted
 - 5.3.6.9. LED indicator (signal presence and power)
- 5.3.7. Wireless Presentation Device

- 5.3.7.1. Maximum Output Resolution: Up to 4096x2160 at 60 fps HDMI 2.0
- 5.3.7.2. Maximum Simultaneous Presenters on Screen: 8 simultaneous mirroring devices, each at 1080p 60fps.
- 5.3.7.3. No app is required to install on presentation devices
- 5.3.7.4. No button or dongle is required for connection

- 5.3.8. Analog Audio Mixer
 - 5.3.8.1. 12-Channel Mixing Console
 - 5.3.8.2. Maximum of 6 Mic / 12 Line Inputs (4 mono + 4 stereo)
 - 5.3.8.3. 2 Group Buses + 1 Stereo Bus
 - 5.3.8.4. 2 AUX (incl. FX)
 - 5.3.8.5. 24-bit / 192kHz 2in / 2out USB Audio functions

- 5.3.9. Ceiling Speaker
 - 5.3.9.1. 8" full range transducer delivers up to 10W in either 70V or 100V mode using wiring taps on the transformer
 - 5.3.9.2. Transformer tap 2.5, 5, 10W
 - 5.3.9.3. 490, 1k, 2k Ohms input impedance
 - 5.3.9.4. 100 Hz ~ 20 kHz frequency response
 - 5.3.9.5. 98 dB SPL (1W/1m)
 - 5.3.9.6. Metal frame and metal grille
 - 5.3.9.7. Shallow depth

- 5.3.10. Power Amplifier
 - 5.3.10.1. Compact mono amplifier with 200 watts RMS power output into a 70-volt line and Energy Star qualification or any eco label certification
 - 5.3.10.2. 1 stereo or 2 mono, balanced or unbalanced signals on one 5-pole, 3.5 mm captive screw connector
 - 5.3.10.3. Sum incoming left and right channels for mono amplification
 - 5.3.10.4. 1 high impedance stereo speaker level signal on one 2-pole, 5 mm screw-lock captive screw connector
 - 5.3.10.5. 200 watts rms output power into a 70 volt line measured at 1 kHz with less than 0.1% THD
 - 5.3.10.6. Minimum load impedance of 25 ohms
 - 5.3.10.7. Switch-selectable high pass filter for frequencies below 80 Hz with a 12 dB per octave roll off
 - 5.3.10.8. Class D amplifier design
 - 5.3.10.9. Class D Ripple Suppression technology
 - 5.3.10.10. Convection cooled and operate without fans or vents

- 5.3.10.11. Automatic clip limiter to detect onset of clipping by comparing input and output waveforms and automatically reduce gain without audible artifacts to eliminate clipping distortion
- 5.3.10.12. 45 watts during typical (1/8 power) operation
- 5.3.10.13. 12 watts during quiescent operation

- 5.3.11. Wireless Handheld Microphone
 - 5.3.11.1. Up to 88 MHz bandwidth, up to 32 channels
 - 5.3.11.2. Increased RF output power (10/30/50 mW)
 - 5.3.11.3. Transmission Range: up to 100 meters / 330 feet
 - 5.3.11.4. THD, total harmonic distortion $\leq 0.9\%$
 - 5.3.11.5. Signal-to-noise ratio ≥ 115 dBA
 - 5.3.11.6. Equalizer with Preset 1: Flat; Preset 2: Low Cut (-3 dB at 180 Hz); Preset 3: Low Cut/High Boost (-3 dB at 180 Hz, +6 dB at 10 kHz); Preset 4: High Boost (+6 dB at 10 kHz)
 - 5.3.11.7. Wireless handheld transmitter with AF frequency response 80 – 18,000 Hz; Frequency stability $\leq \pm 15$ ppm,; Operating time Typically 8 h & Transmission frequency Max. 3520 transmission frequencies, adjustable in 25 kHz steps, 20 frequency banks, each with up to 32 factory-preset channels, no intermodulation, 6 frequency banks with up to 32 programmable channels; Power: operates on two rechargeable AA batteries for up to 5 to 10 hours; With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger
 - 5.3.11.8. Microphone Stand - Boom Mic Stand with boom length at 30" max; Tripod type with base spread at 23"; Adjustable height, from 32" to 61.5"; Adjustable angle; Can be easily fold in and out packing and setting-up; Nonslip rubber feet with grooves; Color black; With microphone holder or clip

- 5.3.12. Wireless Lapel Microphone
 - 5.3.12.1. Frequency range 470 - 558 MHz
 - 5.3.12.2. Nominal deviation ± 24 kHz and Switching bandwidth up to 88 MHz
 - 5.3.12.3. Audio output 6.3 mm jack socket (unbalanced): +12 dBu and XLR socket (balanced): +18 dBu
 - 5.3.12.4. Intermodulation attenuation Typically ≥ 70 dB
 - 5.3.12.5. Body pack transmitter with Peak deviation ± 48 kHz, RF output power switchable: Low: typ. 10 mW, Standard: typ. 30 mW, High: typ. 50 mW, Signal-to-noise ratio ≥ 115 dBA, Input impedance 40 k Ω , unbalanced / 1 M Ω and AF frequency

response Mic: 80 – 18,000 Hz, Line: 25 – 18,000 Hz

- 5.3.12.6. Clip on microphone with Max. sound pressure level 130 dB, Pick-up pattern omni-directional & Connector 3.5 mm jack with approx. 1.60 m cable length
- 5.3.12.7. operates on two rechargeable AA batteries for up to 5 to 10 hours; With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger.
- 5.3.13. Equipment Rack
 - 5.3.13.1. 3ft with casters, door, lock and power strip
 - 5.3.13.2. Post-rt (25x50)
 - 5.3.13.3. Covers- CRS #20
 - 5.3.13.4. Frame channels- CRS #16
 - 5.3.13.5. Vertical channels- CRS #14
 - 5.3.13.6. Top cover with 2 fans and cable access
 - 5.3.13.7. Detachable side cover with snaplock, camlock
 - 5.3.13.8. Plexiglass(smoked) front with lock
 - 5.3.13.9. Powerstrip
 - 5.3.13.10. 4x Caster Wheels & Footings with bottom cover
 - 5.3.13.11. 2x cable manager (ring type)
 - 5.3.13.12. 2x E-tray RUx16"
 - 5.3.13.13. With Bolts and Nuts
 - 5.3.13.14. Powder Coated Finish- Charcoal Gray/Black
- 5.3.14. Wall Mount Touch panel
 - 5.3.14.1. 3.5" capacitive touchscreen
 - 5.3.14.2. 320x480 resolution
 - 5.3.14.3. Robust, scratch and smudge-resistant Screen
 - 5.3.14.4. PoE (Power Over Ethernet)
 - 5.3.14.5. Built-in speaker
 - 5.3.14.6. Light sensor that automatically modifies the screen's brightness in response to fluctuations in the surrounding room illumination.
 - 5.3.14.7. Automatic clock synchronization allows touch panel to display the accurate time and date
 - 5.3.14.8. USB 2.0 port for future expansion
- 5.3.15. IR Emitter
 - 5.3.15.1. Contains IR-emitting diode with a 10' (3 m) wire lead, IR emitter shield, and mounting adhesive
 - 5.3.15.2. Remotely control AV equipment via IR
- 5.3.16. Wireless Access Point

- 5.3.16.1. Interface: Gigabit Ethernet (RJ-45) Port *1 (Support IEEE802.3af PoE)
- 5.3.16.2. Power Supply: 802.3af/at PoE, 24V Passive PoE (+4,5pins; -7,8pins. PoE Adapter Included)
- 5.3.16.3. Antenna Type: 2.4GHz: 2* 4dBi, 5GHz: 2*4dBi
- 5.3.16.4. Wireless Standards: IEEE 802.11ac/n/g/b/a
- 5.3.16.5. Frequency: 2.4GHz and 5GHz
- 5.3.16.6. Signal Rate: 5GHz:Up to 867Mbps, 2.4GHz:Up to 300Mbps
- 5.3.16.7. Multiple SSIDs (Up to 16 SSIDs, 8 for each band)

- 5.3.17. Power Controller
 - 5.3.17.1. Material: Metal, plastic
 - 5.3.17.2. Frequency: 50/60Hz
 - 5.3.17.3. Current Load: 25A
 - 5.3.17.4. Load Voltage: AC 24-480V
 - 5.3.17.5. Voltage Control: DC 3-32V

- 5.3.18. PTZ Camera
 - 5.3.18.1. Video format/Resolution: 1080p 59.94/50/29.97/25; 1080i 59.94/50; 720p 59.94/50; 480i, 576i (on CVBS)
 - 5.3.18.2. Image Sensor: 1/2.8" type progressive scan CMOS sensor
 - 5.3.18.3. Effective Pixels (approx.): 2.14 Mega pixels; S/N Ratio 50dB
 - 5.3.18.4. Min. Illumination: Color : 0.4 lx, B/W : 0.03 lx (F1.6, 1/30 sec, 50IRE, Gain: High)
 - 5.3.18.5. Electronic Shutter: 1/25~1/1250 sec (50/25Hz), 1/30~1/1500 sec (59.94/29.97Hz)
 - 5.3.18.6. Zoom Ratio: 30x Optical Zoom
 - 5.3.18.7. Gamma Control: Off / Normal / Standard Mode 1-4;
 - 5.3.18.8. Iris Control: Auto / Manual
 - 5.3.18.9. Digital Noise Reductions
 - 5.3.18.10. White Balance: AWB, MWB, One push WB, Outdoor, Indoor, Fluorescent
 - 5.3.18.11. Focus Mode: Auto / Manual
 - 5.3.18.12. Panning / Tilting Range: Pan: 270°, Tilt: +90° to -20°; Panning / Tilting
 - 5.3.18.13. Speed: Manual: 1~150°/Sec, Swing: 1~150°/Sec;
 - 5.3.18.14. Preset: 50 Position; Focal Length: f=4.3 mm (WIDE) to 129 mm (TELE), F1.6 to F4.7
 - 5.3.18.15. Field of View: Approx. 63.7° (WIDE END) / 2.3° (TELE END)
 - 5.3.18.16. Image Compensation: Day & Night Function

- 5.3.18.17. Video Output: 3G-SDI x1, HDMI x1, CVBS x1; Tally LED: Dual color (Red, Green)
 - 5.3.18.18. Lens Filter: M52.0 x 0.75 Thread with UV Protection Control Protocol: VISCA, DVIP
 - 5.3.18.19. Remote Control Interface: RS-422: Transmit up to 1000m, DVIP (RJ45): 100m
 - 5.3.18.20. Power: DC 12V 29W
- 5.3.19. SDI-USB Capturing Device
- 5.3.19.1. Input: 1x HD/3G-SDI
 - 5.3.19.2. Output: 1x USB 3.0 (Micro B), 1x SDI loop through
 - 5.3.19.3. Input Video Bandwidth: 150MHz (pixel clock rate)
 - 5.3.19.4. Output Video Bandwidth: Up to 350Mbps (USB)
 - 5.3.19.5. Audio Input: SDI Embedded Audio & 3.5 mm stereo in
 - 5.3.19.6. Audio Format: 2-Channel, 16-bit PCM
 - 5.3.19.7. Capture Video Format: YUY2 (USB3.0), MJPG (USB2.0/3.0)
 - 5.3.19.8. Firmware Update: Via USB Port; Supported OS: Windows10 (or above), OS X (10.10 or above), Linux Ubuntu 14.04
 - 5.3.19.9. Power Supply: Via USB
 - 5.3.19.10. Power Consumption: 3W
- 5.3.20. USB Patch Cord (1m)
- 5.4. Boardroom (at least 60 pax) located at the 4th Floor of the building
- 5.4.1. 55" Video Wall Monitor Display
- 5.4.1.1. Screen Size: 55"
 - 5.4.1.2. Panel Technology: IPS
 - 5.4.1.3. Aspect Ratio: 16:9
 - 5.4.1.4. Native Resolution: 1,920 x 1,080 (FHD)
 - 5.4.1.5. Brightness: 500 cd/m²
 - 5.4.1.6. Contrast Ratio: 1,100:1
 - 5.4.1.7. Viewing Angle (H x V):
 - 5.4.1.8. Response Time: 8ms (G to G)
 - 5.4.1.9. Operation Hours: 24 Hours
 - 5.4.1.10. Orientation: Landscape & Portrait
 - 5.4.1.11. Input: HDMI (2, HDCP2.2), DP (HDCP2.2), DVI-D (HDCP1.4), Audio, USB2.0 Type A(1)
 - 5.4.1.12. Output: DP (Input : HDMI / DVI / DP), Audio
 - 5.4.1.13. External Control: RS232C In/Out, RJ45 In/Out, IR In
 - 5.4.1.14. Bezel Width: Even bezel (0.44mm)
- 5.4.2. Universal Pop-Out Video Wall Mount

- 5.4.2.1. Compatible with screen size: 42" (106cm) - 75" (190cm)
 - 5.4.2.2. Maximum load: 70kg (154lbs)
 - 5.4.2.3. Modular mount for unlimited wall display configurations
 - 5.4.2.4. Landscape or portrait screen mounting
 - 5.4.2.5. Push to open / push to close
 - 5.4.2.6. Tool-less micro-adjustments at 8 points
 - 5.4.2.7. Capable of wall or pole mounting
 - 5.4.2.8. Integrated cable management
- 5.4.3. 55" Smart Commercial TV
- 5.4.3.1. Operating System (OS): webOS Smart TV
 - 5.4.3.2. Number of CPUs: Quad
 - 5.4.3.3. Type: 4K UHD
 - 5.4.3.4. Resolution: 3,840 X 2,160 (UHD)
 - 5.4.3.5. Brightness: 360 nit
 - 5.4.3.6. Connectivity: HDMI 2.0, USB (1 Side), LAN (Rear), RF In (Rear, RF), SPDIF (Optical Digital Audio Out) (Rear), Wi-Fi, Bluetooth (V 5.0)
 - 5.4.3.7. Speaker (Sound Output): 20 W (10 W per Channel)
 - 5.4.3.8. Channel: 2.0 ch
 - 5.4.3.9. Power Supply: AC 100-240 V, 50/60 Hz (Differ by Region)
 - 5.4.3.10. Standby Power Consumption: Under 0.5 W (Differ by Region)
 - 5.4.3.11. With Energy Saving Mode
- 5.4.4. Mobile TV Cart for 55"
- 5.4.4.1. Height adjustable movable TV Stand
 - 5.4.4.2. TV Screen Size: 32"-55"
 - 5.4.4.3. Max Weight: 75 kg / 165 lbs
 - 5.4.4.4. Supported VESA: 200x200mm, 400x200mm, 300x300, 400x400mm, 600x400mm
 - 5.4.4.5. Adjustment Range: 1177-1717mm
 - 5.4.4.6. Adjustable Angle: +5°~-15°
 - 5.4.4.7. Material: Powder Coated Steel
 - 5.4.4.8. Silent lockable wheels
 - 5.4.4.9. Heavy-Duty Casters: Smooth mobility with quality that lasts a lifetime
 - 5.4.4.10. Power board and cable management
 - 5.4.4.11. Height Adjustable Equipment Shelf: Provides more storage space for accessories
- 5.4.5. Scaling Presentation Switcher

- 5.4.5.1. Rack-mountable scaler and switcher for DisplayPort and HDMI video sources and associated digital and analog audio
 - 5.4.5.2. DisplayPort input supporting DisplayPort SST - Single Stream Transport data rates up to 21.6 Gbps
 - 5.4.5.3. 2 HDMI input supporting HDMI specifications including 4K/60 Deep Color, data rates up to 18 Gbps, and HD lossless audio formats, 1 RJ-45 for twisted pair
 - 5.4.5.4. Support image adjustments for brightness, contrast, color, tint, detail, H/V positioning, and sizing
 - 5.4.5.5. With storage and recall of video parameters and picture settings
 - 5.4.5.6. Video output connections: One HDMI; RJ-45 for twisted pair
 - 5.4.5.7. Selectable video output rates from 640x480 to 4096x2160 @ 60 Hz
 - 5.4.5.8. Low power standby state selectable via Ethernet, RS-232 or USB
 - 5.4.5.9. Configurable automatic switching modes between input sources
 - 5.4.5.10. Selectable transition effects when switching inputs
 - 5.4.5.11. Audio input connections: One DisplayPort, embedded; Two HDMI, embedded; One RJ-45 for twisted pair transmitting both: Embedded digital audio; Pass-through stereo audio; One 5-pole 3.5mm captive screw, balanced/unbalanced line level analog stereo
 - 5.4.5.12. Audio output connections; One 5-pole 3.5mm captive screw, with output level control and configurable for balanced/unbalanced, analog stereo or dual mono; One HDMI, embedded and with output level control for two-channel PCM; One RJ-45 for twisted pair transmitting both: Embedded digital audio and Pass-through stereo audio
- 5.4.6. HDMI Transmitter
- 5.4.6.1. Rack-mountable transmitter for the transmission of HDMI, audio, and control
 - 5.4.6.2. Video input for digital video signals; Supported HDMI specifications include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through

- 5.4.6.3. Embedded digital audio on HDMI input
 - 5.4.6.4. Dedicated analog audio input connection; one stereo analog audio
 - 5.4.6.5. 1 bidirectional RS-232 pass-through & 1 bidirectional IR pass-through
 - 5.4.6.6. Signal transmission distance capability of 70 m at 1920x1200, including 1080p @ 60 Hz and 2K using a shielded CATx cable
 - 5.4.6.7. Signal transmission distance capability of 4K @ 30 Hz, UHD, and 2560x1600 up to 40 m using a shielded CATx cable
 - 5.4.6.8. Can support computer and video resolutions up to 4K, including 1080p/60 Deep Color
 - 5.4.6.9. HDCP 2.3 compliant with backward compatibility with earlier HDCP versions
- 5.4.7. HDMI Receiver
- 5.4.7.1. Rack-mountable receiver for HDMI, audio, and control
 - 5.4.7.2. 1 video output for digital video signals; Supported HDMI specifications include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through
 - 5.4.7.3. Embedded digital audio on HDMI output
 - 5.4.7.4. Dedicated analog audio output connection; one stereo analog audio
 - 5.4.7.5. Communication connections for AV device control; One bidirectional RS-232 pass-through & One bidirectional IR pass-through
 - 5.4.7.6. Signal transmission distance capability of 70 m at 1920x1200, including 1080p @ 60 Hz and 2K using a shielded CATx cable
 - 5.4.7.7. Signal transmission distance capability of 4K @ 30 Hz, UHD, and 2560x1600 up to 40 m using a shielded CATx cable
 - 5.4.7.8. Can support computer and video resolutions up to 4K, including 1080p/60 Deep Color
 - 5.4.7.9. HDCP 2.3 compliant with backward compatibility with earlier HDCP versions
- 5.4.8. Distribution Amplifier
- 5.4.8.1. Four output distribution amplifiers
 - 5.4.8.2. One HDMI input, one 3.5 mm stereo mini jack for audio with loop-through
 - 5.4.8.3. Four twisted pair outputs on RJ-45
 - 5.4.8.4. Buffered HDMI input loop-through

- 5.4.8.5. Can support computer and video resolutions up to 4K
- 5.4.8.6. Audio input with loop-through (accepts additional analog stereo audio signals)
- 5.4.8.7. Bidirectional RS-232 and IR pass-through for AV device control
- 5.4.8.8. HDMI to DVI Interface Format Correction
- 5.4.8.9. Automatic color bit depth management

- 5.4.9. Wireless Presentation Device
 - 5.4.9.1. Maximum Output Resolution: Up to 4096x2160 at 60 fps HDMI 2.0
 - 5.4.9.2. Maximum Simultaneous Presenters on Screen: 8 simultaneous mirroring devices, each at 1080p 60fps.
 - 5.4.9.3. No app is required to install on presentation devices
 - 5.4.9.4. No button or dongle is required for connection

- 5.4.10. PTZ Camera
 - 5.4.10.1. Video format/Resolution: 1080p 59.94/50/29.97/25; 1080i 59.94/50; 720p 59.94/50; 480i, 576i (on CVBS)
 - 5.4.10.2. Image Sensor: 1/2.8" type progressive scan CMOS sensor
 - 5.4.10.3. Effective Pixels (approx.): 2.14 Mega pixels; S/N Ratio 50dB
 - 5.4.10.4. Min. Illumination: Color : 0.4 lx, B/W : 0.03 lx (F1.6, 1/30 sec, 50IRE, Gain: High)
 - 5.4.10.5. Electronic Shutter: 1/25~1/1250 sec (50/25Hz), 1/30~1/1500 sec (59.94/29.97Hz)
 - 5.4.10.6. Zoom Ratio: 30x Optical Zoom
 - 5.4.10.7. Gamma Control: Off / Normal / Standard Mode 1-4
 - 5.4.10.8. Iris Control: Auto / Manual
 - 5.4.10.9. Digital Noise Reductions; White Balance: AWB, MWB, One push WB, Outdoor, Indoor, Fluorescent
 - 5.4.10.10. Focus Mode: Auto / Manual; Panning / Tilting Range: Pan: 270°, Tilt: +90° to -20°
 - 5.4.10.11. Panning / Tilting Speed: Manual: 1~150°/Sec, Swing: 1~150°/Sec
 - 5.4.10.12. Preset: 50 Position; Focal Length: f=4.3 mm (WIDE) to 129 mm (TELE), F1.6 to F4.7; Field of View: Approx. 63.7° (WIDE END) / 2.3° (TELE END)
 - 5.4.10.13. Image Compensation: Day & Night Function; Video Output: 3G-SDI x1, HDMI x1, CVBS x1; Tally LED: Dual color (Red, Green)

- 5.4.10.14. Lens Filter: M52.0 x 0.75 Thread with UV Protection Control Protocol: VISCA, DVIP
- 5.4.10.15. Remote Control Interface: RS-422: Transmit up to 1000m, DVIP (RJ45): 100m
- 5.4.10.16. Power: DC 12V 29W
- 5.4.11. SDI-USB Capturing Device
 - 5.4.11.1. Input: 1x HD/3G-SDI
 - 5.4.11.2. Output: 1x USB 3.0 (Micro B), 1x SDI loopthrough
 - 5.4.11.3. Input Video Bandwidth: 150MHz (pixel clock rate)
 - 5.4.11.4. Output Video Bandwidth: Up to 350Mbps (USB)
 - 5.4.11.5. Audio Input: SDI Embedded Audio & 3.5 mm stereo in
 - 5.4.11.6. Audio Format: 2-Channel, 16-bit PCM
 - 5.4.11.7. Capture Video Format: YUY2 (USB3.0), MJPG (USB2.0/3.0)
 - 5.4.11.8. Firmware Update: Via USB Port
 - 5.4.11.9. Supported OS: Windows10 (or above), OS X (10.10 or above), Linux Ubuntu 14.04
 - 5.4.11.10. Power Supply: Via USB
 - 5.4.11.11. Power Consumption: 3W
- 5.4.12. HDMI to USB video converter
 - 5.4.12.1. 1x HDMI 1.4a input, Color space RGB, YCbCr, 4:4:4, and 4:2:2 and Embedded audio Ch 1&2 48kHz LPCM
 - 5.4.12.2. 1x USB 3.0 Type-B with Codecs YUY2 4:2:2 8-bit for USB 3.0
 - 5.4.12.3. Analog audio I/O 2-channel LPCM audio from HDMI
 - 5.4.12.4. Audio input connector CH1&2 48kHz LPCM feed from HDMI
 - 5.4.12.5. Compatible with Windows 7 and above (32/64-bit); macOS 10.10 and above; Linux (kernel v2638)
 - 5.4.12.6. UVC-compliant Runs with all software compatible to DirectShow, AVFoundation and V4L2
Compatible to: Teams, Zoom, Webex, Google Meet, etc.
- 5.4.13. USB Hub
 - 5.4.13.1. Ports : 1x USB 3.0 (Type-B) for laptop (Requires Display Link driver on laptop); 2x USB 3.0 (Type-A) for camera and speakerphone; 4x USB 2.0 ports; 1x HDMI out; 1x DVI out
 - 5.4.13.2. SDRAM: DDR3 1GB
 - 5.4.13.3. Flash: 8MB

- 5.4.14. 15m USB Extender
 - 5.4.14.1. USB 3.2 Gen1 Specification (5 Gbps); Ultra slim design and unique locker head design; Daisy-chainable, maximum distance of up to 30 m; Multiplatform support – Windows and Mac

- 5.4.15. PC Server
 - 5.4.15.1. Operating System: Windows 11 Pro for Business
 - 5.4.15.2. Processor: Intel Core i7-12700KF 3.6 GHz (25M Cache, up to 5.0 GHz, 12 cores)
 - 5.4.15.3. Graphics: 8GB DDR6
 - 5.4.15.4. Memory: 8GB DDR4 U-DIMM x 2, Memory max up to: 64GB
 - 5.4.15.5. SATA: 4 x SATA 6.0Gb/s ports
 - 5.4.15.6. Storage: 512GB M.2 NVMe PCIe 3.0 SSD
 - 5.4.15.7. Front I/O Ports: 1x Headphone; 1x MIC in; 1x USB 3.2 Gen 1 Type-C; 1x USB 3.2 Gen 1 Type-A
 - 5.4.15.8. Rear I/O Ports: 1x RJ45 Gigabit Ethernet; 1x HDMI 1.4; 1x Display port 1.2; 5 x Audio jacks; 6x USB 2.0 Type-A; 1x USB 3.2 Gen 2 Type-A; 1x USB 3.2 Gen 2 Type-C
 - 5.4.15.9. Expansion Slots: 1x PCIe 3.0 x 16; 2x PCIe 3.0 x 1; 1x PCIe 4.0 x 16; 4x DDR4 U-DIMM slot
 - 5.4.15.10. Audio: High Definition 7.1 Channel Audio
 - 5.4.15.11. Power Supply: 700W power supply (80+ Bronze, peak 750W)
 - 5.4.15.12. UPS: Capacity: 390W | 650VA, Voltage range: 96–140Vac, Surge protection: Yes

- 5.4.16. Boundary Microphone
 - 5.4.16.1. Wired table boundary microphone with half-cardioid pickup pattern
 - 5.4.16.2. Programmable microphone button and a two-color LED ring as a status indicator
 - 5.4.16.3. Nominal impedance 200 Ω
 - 5.4.16.4. Phantom powering P 24 - P 48
 - 5.4.16.5. Frequency response 40 Hz – 20 kHz
 - 5.4.16.6. Equivalent noise level 29 dB (A)
 - 5.4.16.7. Current consumption 5.3 mA
 - 5.4.16.8. Dynamic range 111 dB (A)
 - 5.4.16.9. Sensitivity 10 mV/Pa

- 5.4.17. Wireless Handheld Microphone
 - 5.4.17.1. Up to 88 MHz bandwidth, up to 32 channels
 - 5.4.17.2. Increased RF output power (10/30/50 mW)
 - 5.4.17.3. Transmission Range: up to 100 meters / 330 feet
 - 5.4.17.4. THD, total harmonic distortion ≤ 0.9 %

- 5.4.17.5. Signal-to-noise ratio ≥ 115 dBA
- 5.4.17.6. Equalizer with Preset 1: Flat; Preset 2: Low Cut (-3 dB at 180 Hz); Preset 3: Low Cut/High Boost (-3 dB at 180 Hz, +6 dB at 10 kHz) Preset 4: High Boost (+6 dB at 10 kHz)
- 5.4.17.7. Wireless handheld transmitter with AF frequency response 80 – 18,000 Hz; Frequency stability $\leq \pm 15$ ppm, Power supply operates on two rechargeable AA batteries for up to 5 to 10 hours; With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger. 3520 transmission frequencies, adjustable in 25 kHz steps, 20 frequency banks, each with up to 32 factory-preset channels, no intermodulation, 6 frequency banks with up to 32 programmable channels

- 5.4.18. Wireless Lapel Microphone
 - 5.4.18.1. Frequency range 470 - 558 MHz
 - 5.4.18.2. Nominal deviation ± 24 kHz and Switching bandwidth up to 88 MHz
 - 5.4.18.3. Audio output 6.3 mm jack socket (unbalanced): +12 dBu and XLR socket (balanced): +18 dBu
 - 5.4.18.4. Intermodulation attenuation Typically ≥ 70 dB
 - 5.4.18.5. Body pack transmitter with Peak deviation ± 48 kHz, RF output power switchable: Low: typ. 10 mW, Standard: typ. 30 mW, High: typ. 50 mW, Signal-to-noise ratio ≥ 115 dBA, Input impedance 40 k Ω , unbalanced / 1 M Ω and AF frequency response Mic: 80 – 18,000 Hz, Line: 25 – 18,000 Hz
 - 5.4.18.6. Clip on microphone with Max. sound pressure level 130 dB, Pick-up pattern omni-directional & Connector 3.5 mm jack with approx. 1.60 m cable length

- 5.4.19. Digital Signal Processor
 - 5.4.19.1. Built-in Native Camera Tracking and many 3rd party cameras using RS-232 and Ethernet VISCA over IP
 - 5.4.19.2. Built-in USB for PC-based conferencing
 - 5.4.19.3. stack up units up to 144 Mic/Line inputs
 - 5.4.19.4. Acoustic Echo Cancellation processing
 - 5.4.19.5. Distributed Echo Cancellation on every mic input.
 - 5.4.19.6. 12 mic/line inputs with AEC, 8 outputs, USB audio
 - 5.4.19.7. Advanced microphone gating
 - 5.4.19.8. Acoustic Intelligence with faster convergence
 - 5.4.19.9. Noise Cancellation with Adaptive-Ambience

- 5.4.19.10. Balanced audio inputs, 3.81 mm Black color Phoenix/Euroblock type male header, Push-on miniterminal block
 - 5.4.19.11. Balanced audio outputs, 3.81 mm Black color Phoenix/Euroblock type male header, Push-on miniterminal block
 - 5.4.19.12. 20 Hz – 22 kHz @ +4 dBu, +/- 0.5 dBu Frequency response
 - 5.4.19.13. Dynamic range 20 Hz – 20 kHz @ 0 dB, > 105 dB
 - 5.4.19.14. Digital Audio, 2 x 2 bi-directional channels and Sample Bit Depth 24-Bit
 - 5.4.19.15. RJ-45, 10/100 Mbps Ethernet Network, Auto Negotiation
 - 5.4.19.16. Power Consumption: 50 Watts Typical and Voltage: 100-240 VAC, 50/60 Hz
- 5.4.20. Digital Signal Expansion Processor
- 5.4.20.1. Built-in Native Camera Tracking and many 3rd party cameras using RS-232 and Ethernet VISCA over IP
 - 5.4.20.2. Built-in USB for PC-based conferencing
 - 5.4.20.3. 12 inputs with AEC, USB audio
 - 5.4.20.4. Distributed Echo Cancellation on every mic input
 - 5.4.20.5. Expansion bus link with 150 channels
 - 5.4.20.6. Advanced microphone gating
 - 5.4.20.7. Stack up units up to 144 Mic/Line inputs
 - 5.4.20.8. Acoustic Intelligence with faster convergence.
 - 5.4.20.9. Noise Cancellation with Adaptive-Ambience
 - 5.4.20.10. Balanced audio inputs, 3.81 mm Black color Phoenix/Euroblock type male header, Push-on miniterminal block
 - 5.4.20.11. Frequency Response: 20 Hz – 22 kHz @ +4 dBu, +/- 0.5 dBu
 - 5.4.20.12. Nominal Input Level: Adjustable -56 dB to 0 dB, 7 dB step coarse gain
 - 5.4.20.13. Digital Audio, 2 x 2 bidirectional channels and Sample Bit Depth: 24-Bit
 - 5.4.20.14. Ethernet RJ-45, 10/100 Mbps Ethernet Network, Auto Negotiation
 - 5.4.20.15. Power Consumption: 50 Watts Typical and Voltage: 100-240 VAC, 50/60 Hz
- 5.4.21. Ceiling Speaker
- 5.4.21.1. 8" full range transducer delivers up to 10W in either 70V or 100V mode using wiring taps on the transformer
 - 5.4.21.2. Transformer tap 2.5, 5, 10W

- 5.4.21.3. 490, 1k, 2k Ohms input impedance
 - 5.4.21.4. 100 Hz ~ 20 kHz frequency response
 - 5.4.21.5. 98 dB SPL (1W/1m)
 - 5.4.21.6. Metal frame and metal grille
 - 5.4.21.7. Shallow depth
- 5.4.22. Power Amplifier
- 5.4.22.1. Audio power amplifier delivering eight 35 watt channels in a half rack, 1U, convection cooled, plenum rated enclosure that includes rack mount hardware
 - 5.4.22.2. Delivers 35 watts into 70 volt systems
 - 5.4.22.3. 57x (35 dB) Audio Voltage Gain
 - 5.4.22.4. At least 8 balanced/unbalanced Audio Input and has Nominal level +4 dBu, balanced
 - 5.4.22.5. At least 8 channels, 70V Audio output and has Load Impedance of 143 ohms minimum
 - 5.4.22.6. 35 watts rms per channel, 70V, 1 kHz, 0.1% THD output power and Frequency response 20 Hz to 20 kHz, ± 1 dB
 - 5.4.22.7. THD + Noise 0.1% @ 1 kHz at 3 dB below clipping and S/N 100 dB, 20 Hz - 20 kHz, unweighted
 - 5.4.22.8. Damping factor >100 @ 143 ohms and High pass filter 0 Hz, 12 dB per octave rolloff, selectable via captive screw
- 5.4.23. 4K/60 HDMI Distribution Amplifiers
- 5.4.23.1. Input: One female HDMI type-A connector
 - 5.4.23.2. Output: Four female HDMI type-A connectors
 - 5.4.23.3. Computer and video resolutions up to 4K/60 @ 4:4:4
 - 5.4.23.4. HDMI 2.0b specification features include data rates up to 18 Gbps, HDR, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC control
 - 5.4.23.5. +5 VDC, 250 mA power on each output for external peripheral devices
 - 5.4.23.6. HDCP authentication and signal presence LED indicators
- 5.4.24. Control Processor
- 5.4.24.1. 6 RS-232 ports on captive screw connectors located on the back of the processor that can be used for unidirectional or bidirectional control of AV system components

- 5.4.24.2. 2 RS-232/RS-422/RS-485 ports on captive screw connectors located on the back of the processor that can be used for unidirectional or bidirectional control of AV system components
 - 5.4.24.3. 8 IR/Serial ports on captive screw connectors located on the back of the processor
 - 5.4.24.4. 8 low voltage relays on captive screw connectors
 - 5.4.24.5. 4 flex I/O ports on captive screw connectors located on the back of the processor that can be used as analog inputs in addition to digital input or a digital output that can be used to interface with devices such as sensors, switches, LEDs and relays
 - 5.4.24.6. 1 eBUS port on a 4-pole captive screw connector located on the back of the control processor for connecting to eBUS devices
 - 5.4.24.7. 4, independently switched 12-volt outputs on captive screw connectors
 - 5.4.24.8. Must female RJ-45 jack located on the back of the enclosure that supports 10/100/1000Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues
 - 5.4.24.9. Web-based AV resource management application that provides a means to manage, monitor, and control AV equipment
 - 5.4.24.10. at least 4.5 GB of nonvolatile memory with at least 4.2 GB available to the user
 - 5.4.24.11. License for User Interfaces
- 5.4.25. Controller
- 5.4.25.1. Quad-core processor, eight times more memory, a higher resolution, 1024x600 capacitive touchscreen built with scratch and smudge-resistant
 - 5.4.25.2. 7" capacitive touchscreen with 1024x600 resolution and 24-bit color depth
 - 5.4.25.3. Power over Ethernet provides power and communication over a single Ethernet cable
 - 5.4.25.4. Pixel/pixel pitch 170, Brightness 420 nits (cd/m²), Viewing angle $\pm 75^\circ$ horizontal, $+70^\circ/-75^\circ$ vertical, and Touch screen Capacitive Display screen
 - 5.4.25.5. atleast SDRAM 2 GB and Flash 8 GB

- 5.4.25.6. 1 female RJ-45 connector Ethernet control/communications port
- 5.4.25.7. 1 high-speed USB 2.0 device on control port
- 5.4.25.8. Speaker output 1 mono, 86 dB SPL, 0.1 watt, 0.1 m, half space and Frequency response 750 Hz to 20 kHz, ± 5 dB

- 5.4.26. IR Emitter
 - 5.4.26.1. Contains IR-emitting diode with a 10' (3 m) wire lead, IR emitter shield, and mounting adhesive
 - 5.4.26.2. Remotely control AV equipment via IR

- 5.4.27. 16-Port Gigabit PoE Switch
 - 5.4.27.1. Standards and Protocols: IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3af, IEEE 802.3at, IEEE 802.1q, IEEE 802.1p
 - 5.4.27.2. Interface: 16 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 2 Gigabit SFP Ports
 - 5.4.27.3. Network Media: 10BASE-T: UTP category 3, 4, 5 cable (maximum 100m), EIA/TIA-568 100 Ω STP (maximum 100m), 100BASE-TX: UTP category 5, 5e cable (maximum 100m), EIA/TIA-568 100 Ω STP (maximum 100m), 1000BASE-T: UTP category 5, 5e, 6 or above cable (maximum 100m), EIA/TIA-568 100 Ω STP (maximum 100m), 1000BASE-X MMF, SMF
 - 5.4.27.4. Switching Capacity: 36 Gbps
 - 5.4.27.5. Packet Forwarding Rate: 23.8 Mbps
 - 5.4.27.6. Packet Buffer Memory: 4.1 Mbit

- 5.4.28. Wireless Access Point
 - 5.4.28.1. Interface: Gigabit Ethernet (RJ-45) Port *1 (Support IEEE802.3af PoE)
 - 5.4.28.2. Power Supply: 802.3af/at PoE, 24V Passive PoE (+4,5pins; -7,8pins. PoE Adapter Included)
 - 5.4.28.3. Antenna Type: 2.4GHz: 2* 4dBi, 5GHz: 2*4dBi
 - 5.4.28.4. Wireless Standards: IEEE 802.11ac/n/g/b/a
 - 5.4.28.5. Frequency: 2.4GHz and 5GHz
 - 5.4.28.6. Signal Rate: 5GHz: Up to 867Mbps, 2.4GHz: Up to 300Mbps
 - 5.4.28.7. Multiple SSIDs (Up to 16 SSIDs, 8 for each band)

- 5.4.29. Power Controller
 - 5.4.29.1. Material: Metal, plastic
 - 5.4.29.2. Frequency: 50/60Hz
 - 5.4.29.3. Current Load: 25A

5.4.29.4. Load Voltage: AC 24-480V

5.4.29.5. Voltage Control: DC 3-32V

5.4.30. Equipment Rack

- 5.4.30.1. 5ft with casters, door, lock and power strip
- 5.4.30.2. Top cover with 2 fans and cable access
- 5.4.30.3. Detachable side cover with snaplock, camlock
- 5.4.30.4. Plexiglass(smoked) front with lock
- 5.4.30.5. Powerstrip
- 5.4.30.6. 4x Caster Wheels & Footings with bottom cover
- 5.4.30.7. 2x cable manager (ring type)
- 5.4.30.8. 2x E-tray RUx16"
- 5.4.30.9. With Bolts and Nuts
- 5.4.30.10. Powder Coated Finish- Charcoal Gray/Black

5.5. Auditorium

5.5.1. P3.9mm Indoor LED Wall Display

- 5.5.1.1. Module: Dimension (250 x 250), Resolution (64 x 64), Pixel Pitch 3.91mm, Pixel Density 654100m², LED Configuration 1R1G1B, LED Type SMD1921
- 5.5.1.2. Panel: Dimension (500 x 500) mm, Module Quantity: 4, Physical Resolution (128 x 256), Physical Pixels (Total): 32,768, Weight/Panel (Kg): 14, Material: Aluminum, Average Power/Panel (Watts): 168, Max Power/Panel (Watts): 280
- 5.5.1.3. Display: Panel Quantity (pcs) 8 (W) x 5 (H) = 40 panels, Screen Area Dimension (m) 4m x (W) x 2.5m (H) = 10m², Display Resolution (dots) 1024 (W) x 1280 (H) = 1,310,720, Total Average Power (Watts) 6720, Total Max Power (Watts) 11,200
- 5.5.1.4. Parameter: Brightness 4500 cd/m², Viewing Angle Horizontal 140 deg; Vertical 140 deg, Material Die-casting Aluminum, Best Viewing Distance, 3.9mm, Brightness Control 256 level, Gray Scale 65536 level, Refresh Frequency 1920Hz, Driving Mode Dynamic scan constant current driving, Input Power Frequency 50 or 60 Hertz, Input Voltage 110 ~ 220 Volt, Blind Spot Rate <1/10000, * Lifetime at 50% brightness: 100000 hours, * Ingress Protection: IP65, * Operating Temperature: -20 ~ +60°C, * Operating Humidity: 10% ~ 90%, * Control Distance: CAT5 Cable: <100m; Single Mode Fiber: 10KM, * Signal Input Format: AV, S-Video, VGA, DVI, YPbPr, HDMI, SDI, * Operating System: Windows

- 5.5.1.5. Inclusive of the following: 1 unit LED Video Processor, 1 lot Wall Mounting Support, 1 lot Electrical with Breaker
- 5.5.2. PTZ Camera
- 5.5.2.1. Video format/Resolution: 1080p 59.94/50/29.97/25; 1080i 59.94/50; 720p 59.94/50; 480i, 576i (on CVBS); Image Sensor: 1/2.8" type progressive scan CMOS sensor; Effective Pixels (approx.): 2.14 Mega pixels; S/N Ratio 50dB; Min. Illumination: Color : 0.4 lx, B/W : 0.03 lx (F1.6, 1/30 sec, 50IRE, Gain: High); Electronic Shutter: 1/25~1/1250 sec (50/25Hz), 1/30~1/1500 sec (59.94/29.97Hz); Zoom Ratio: 30x Optical Zoom; Gamma Control: Off / Normal / Standard Mode 1-4; Iris Control: Auto / Manual; Digital Noise Reductions; White Balance: AWB, MWB, One-push WB, Outdoor, Indoor, Fluorescent; Focus Mode: Auto / Manual; Panning / Tilting Range: Pan: 270°, Tilt: +90° to -20°; Panning / Tilting Speed: Manual: 1~150°/Sec, Swing: 1~150°/Sec; Preset: 50 Position; Focal Length: f=4.3 mm (WIDE) to 129 mm (TELE), F1.6 to F4.7; Field of View: Approx. 63.7° (WIDE END) / 2.3° (TELE END); Image Compensation: Day & Night Function; Video Output: 3G-SDI x1, HDMI x1, CVBS x1; Tally LED: Dual color (Red, Green); Lens Filter: M52.0 x 0.75 Thread with UV Protection Control Protocol: VISCA, DVIP; Remote Control Interface: RS-422: Transmit up to 1000m, DVIP (RJ45): 100m Power: DC 12V 29W
- 5.5.3. SDI-USB Capturing Device
- 5.5.3.1. Input: 1x HD/3G-SDI; Output: 1x USB 3.0 (Micro B), 1x SDI loopthrough; Input Video Bandwidth: 150MHz (pixel clock rate); Output Video Bandwidth: Up to 350Mbps (USB); Audio Input: SDI Embedded Audio & 3.5 mm stereo in; Audio Format: 2-Channel, 16-bit PCM; Capture Video Format: YUY2 (USB3.0), MJPG (USB2.0/3.0); Firmware Update: Via USB Port; Supported OS: Windows10 (or above), OS X (10.10 or above), Linux Ubuntu 14.04; Power Supply: Via USB; Power Consumption: 3W
- 5.5.4. Multifunctional Camera Controller

- 5.5.4.1. Maximum Camera Control 24 cameras over IP, up to 8 camera over serial
- 5.5.4.2. Control Protocol VISCA, VISCA over IP, DVIP, DHCP client
- 5.5.4.3. Connection to Cameras via RS-422, Ethernet
- 5.5.4.4. User friendly interface on 5" touch panel and hardware buttons
- 5.5.4.5. Input/Output Ports: USB 2.0 x2; 10/100Mbps Ethernet (RJ-45 connector) x1; RS-422 (RJ-45 connector) x1
- 5.5.4.6. Zoom knob and lock button

- 5.5.5. HDMI Switchers
 - 5.5.5.1. 4 inputs HDMI and 4 outputs HDMI
 - 5.5.5.2. Computer and video resolutions up to 4K/60 @ 4:4:4
 - 5.5.5.3. Ethernet monitoring and control
 - 5.5.5.4. Can support High Dynamic Range video
 - 5.5.5.5. HDCP authentication and signal presence LED indicators
 - 5.5.5.6. HDMI to DVI Interface Format Correction
 - 5.5.5.7. +5 VDC, 250 mA power on the output for external peripheral devices
 - 5.5.5.8. Multiple control options including Ethernet, RS-232, contact closure, front panel, and auto-input switching
 - 5.5.5.9. Auto-input switching

- 5.5.6. Wireless Presentation Device
 - 5.5.6.1. Maximum Output Resolution: Up to 4096x2160 at 60 fps HDMI 2.0
 - 5.5.6.2. Maximum Simultaneous Presenters on Screen: 8 simultaneous mirroring devices, each at 1080 60fps.
 - 5.5.6.3. No app is required to install on presentation devices
 - 5.5.6.4. No button or dongle is required for connection

- 5.5.7. HDMI Transmitter
 - 5.5.7.1. Rack-mountable transmitter for the transmission of HDMI, audio, and control
 - 5.5.7.2. Video input for digital video signals; Supported HDMI specifications include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through
 - 5.5.7.3. Embedded digital audio on HDMI input
 - 5.5.7.4. Dedicated analog audio input connection; one stereo analog audio

- 5.5.7.5. Communication connections for AV device control; One bidirectional RS-232 pass-through & One bidirectional IR pass-through
 - 5.5.7.6. Signal transmission distance capability of 70 m at 1920x1200, including 1080p @ 60 Hz and 2K using a shielded CATx cable
 - 5.5.7.7. Signal transmission distance capability of 4K @ 30 Hz, UHD, and 2560x1600 up to 40 m using a shielded CATx cable
 - 5.5.7.8. Computer and video resolutions up to 4K, including 1080p/60 Deep Color
 - 5.5.7.9. HDCP 2.3 compliant with backward compatibility with earlier HDCP versions
- 5.5.8. HDMI Receiver
- 5.5.8.1. Rack-mountable receiver for HDMI, audio, and control
 - 5.5.8.2. 1 video output for digital video signals; Supported HDMI specifications include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through.
 - 5.5.8.3. Embedded digital audio on HDMI output
 - 5.5.8.4. Dedicated analog audio output connection; one stereo analog audio.
 - 5.5.8.5. Communication connections for AV device control; One bidirectional RS-232 pass-through & One bidirectional IR pass-through
 - 5.5.8.6. Signal transmission distance capability of 70 m at 1920x1200, including 1080p @ 60 Hz and 2K using a shielded CATx cable
 - 5.5.8.7. Signal transmission distance capability of 4K @ 30 Hz, UHD, and 2560x1600 up to 40 m using a shielded CATx cable
 - 5.5.8.8. Can support computer and video resolutions up to 4K, including 1080p/60 Deep Color
 - 5.5.8.9. HDCP 2.3 compliant with backward compatibility with earlier HDCP versions
- 5.5.9. Digital Matrix Processors
- 5.5.9.1. 12 input, 8 output audio digital matrix processor with digital audio expansion port, auto mixer function with eight groups, 64-bit floating point DSP engine, four input / four output USB audio interface, macros, 8x4 configurable aux inputs / outputs, 16 virtual processing loops, up to eight audio file players, ACP audio control panel support, and 24-bit/48 kHz audio converters

- 5.5.9.2. Selectable +48-volt phantom power for condenser microphones on first eight inputs
- 5.5.9.3. Support twelve mono analog inputs that accept 3.5 mm captive screw connectors: Microphone level & Line level, balanced or unbalanced
- 5.5.9.4. Input gain adjustment from -18 dB to +80 dB in 0.1 dB steps, adjustable per input
- 5.5.9.5. Eight mono-line level, balanced or unbalanced outputs that accept 3.5 mm captive screw connectors
- 5.5.9.6. Output attenuation adjustment from 0 dB to -100 dB in 0.1 dB steps, adjustable per output
- 5.5.9.7. 52x44 mix matrix such that all inputs and returns can be discretely routed to any or all of the outputs or sends
- 5.5.9.8. Emulate mode for offline configuration
- 5.5.9.9. Can cut, copy, and paste editing between processing blocks
- 5.5.9.10. Setup and configuration of digital audio processing tools including, but not limited to: Filters (high pass, low pass, bass shelving, treble shelving, parametric, dynamic loudness, and notch EQ); Dynamics processing (AGC, Compressor, Limiter, Noise Gate);
- 5.5.9.11. Delay processing; Ducking and Adaptive Gain processing; Feedback Suppressor processing, Automixing; and multiple gain stages
- 5.5.9.12. 8 Aux Inputs (to be configured with a combination of file players and USB audio connections)
- 5.5.9.13. Digital audio expansion port (for bidirectional signal routing between two connected processors at sub-millisecond latency)
- 5.5.9.14. 8 sets of 3 configurable digital I/O ports that accept 3.5 mm captive screw connectors (can be programmed to sense and respond to external triggers)
- 5.5.9.15. Powered Speaker with custom mounting bracket
- 5.5.9.16. 15" 2-way portable battery speaker
- 5.5.9.17. LF Components: 15" Woofer
- 5.5.9.18. HF Components: 3.2" Ti. Diap. Driver 1" VC
- 5.5.9.19. USB/SD/FM/Bluetooth
- 5.5.9.20. Recording System
- 5.5.9.21. Karaoke with Echo
- 5.5.9.22. Independent microphone volume control
- 5.5.9.23. Remote control
- 5.5.9.24. 5 band equalizer

- 5.5.9.25. RCA Line in
 - 5.5.9.26. 2 Mic Input
 - 5.5.9.27. Guitar input (shared with mic 2 input)
 - 5.5.9.28. Nominal Impedance: 8 ohms
 - 5.5.9.29. Sensitivity: 97 dB
 - 5.5.9.30. Built-in battery (12V7A) and ext. 12V DC input
 - 5.5.9.31. Internal battery level display
 - 5.5.9.32. Power Supply AC 115V-230V/50Hz-60Hz
 - 5.5.9.33. Retractable handle and wheels
 - 5.5.9.34. Equipped for placement on a tripod tophat
 - 5.5.9.35. Frequency Response: 45Hz to 20 20KHz
 - 5.5.9.36. LCD Screen
 - 5.5.9.37. Peak Power 400watts
- 5.5.10. Power Subwoofer
- 5.5.10.1. Active Hybrid Band Pass Subwoofer
 - 5.5.10.2. 600 watts continuous power, 15" woofer with 3" VC
 - 5.5.10.3. Maximum SPL: 127dB
 - 5.5.10.4. Frequency Response: 43Hz - 160 Hz
- 5.5.11. Powered Floor Monitor Speaker
- 5.5.11.1. Active 2-way coaxial stage monitor
 - 5.5.11.2. 12" woofer with 2.5" Voice Coil, 1"; compression driver with 1.35" VC 350 W; total power (700 W peak) 300 W class D +; 50 Watts class AB power module with SMPS, Dual LIMITER circuit, 2 EQ PRESETS for Monitor or FOH (Front-Of-House) use SPL MAX 124 dB
- 5.5.12. Wireless Handheld Microphone
- 5.5.12.1. Up to 88 MHz bandwidth, up to 32 channels
 - 5.5.12.2. Increased RF output power (10/30/50 mW)
 - 5.5.12.3. Transmission Range: up to 100 meters / 330 feet
 - 5.5.12.4. THD, total harmonic distortion $\leq 0.9 \%$
 - 5.5.12.5. Signal-to-noise ratio ≥ 115 dBA
 - 5.5.12.6. Equalizer with Preset 1: Flat; Preset 2: Low Cut (-3 dB at 180 Hz); Preset 3: Low Cut/High Boost (-3 dB at 180 Hz, +6 dB at 10 kHz) Preset 4: High Boost (+6 dB at 10 kHz)
 - 5.5.12.7. Wireless handheld transmitter with AF frequency response 80 – 18,000 Hz; Frequency stability $\leq \pm 15$ ppm, Power supply operates on two rechargeable AA batteries for up to 5 to 10 hours; With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger; Operating time Typically 8 h & Transmission frequency Max. 3520 transmission frequencies, adjustable in 25 kHz

steps, 20 frequency banks, each with up to 32 factory-preset channels, no intermodulation, 6 frequency banks with up to 32 programmable channels

- 5.5.13. Microphone Stand
 - 5.5.13.1. Boom Mic Stand with boom length at 30" max
 - 5.5.13.2. Tripod type with base spread at 23"
 - 5.5.13.3. Adjustable height, from 32" to 61.5"
 - 5.5.13.4. Adjustable angle
 - 5.5.13.5. Can be easily fold in and out packing and setting-up
 - 5.5.13.6. Nonslip rubber feet with grooves
 - 5.5.13.7. Color black
 - 5.5.13.8. With microphone holder or clip

- 5.5.14. Wireless Lapel Microphone
 - 5.5.14.1. Frequency range 470 - 558 MHz
 - 5.5.14.2. Nominal deviation ± 24 kHz and Switching bandwidth up to 88 MHz
 - 5.5.14.3. Audio output 6.3 mm jack socket (unbalanced): +12 dBu and XLR socket (balanced): +18 dBu
 - 5.5.14.4. Intermodulation attenuation Typically ≥ 70 dB
 - 5.5.14.5. Body pack transmitter with Peak deviation ± 48 kHz, RF output power switchable: Low: typ. 10 mW, Standard: typ. 30 mW, High: typ. 50 mW, Signal-to-noise ratio ≥ 115 dBA, Input impedance 40 k Ω , unbalanced / 1 M Ω and AF frequency response Mic: 80 – 18,000 Hz, Line: 25 – 18,000 Hz
 - 5.5.14.6. Clip on microphone with Max. sound pressure level 130 dB, Pick-up pattern omni-directional & Connector 3.5 mm jack with approx. 1.60 m cable length
 - 5.5.14.7. operates on two rechargeable AA batteries for up to 5 to 10 hours; With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger.

- 5.5.15. Control Processor
 - 5.5.15.1. 6 RS-232 ports on captive screw connectors located on the back of the processor (for unidirectional or bidirectional control of AV system components)
 - 5.5.15.2. 2 RS-232/RS-422/RS-485 ports on captive screw connectors located on the back of the processor (for unidirectional or bidirectional control of AV system components)

- 5.5.15.3. 8 IR/Serial ports on captive screw connectors located on the back of the processor
 - 5.5.15.4. 8 low voltage relays on captive screw connectors
 - 5.5.15.5. 4 flex I/O ports on captive screw connectors located on the back of the processor (for analog inputs in addition to digital input or a digital output that can be used to interface with devices such as sensors, switches, LEDs, and relays)
 - 5.5.15.6. 1 eBUS® port on a 4-pole captive screw connector located on the back of the control processor
 - 5.5.15.7. 4 independently switched 12-volt outputs on captive screw connectors
 - 5.5.15.8. Female RJ-45 jack located on the back of the enclosure that supports 10/100/1000Base-T, half/full duplex with auto-detect for connection to a LAN or WAN and includes link and activity LED indicators located on the left and right of the jack for troubleshooting network issues
 - 5.5.15.9. Can capture IR commands from handheld remotes
 - 5.5.15.10. Web-based AV resource management application that provides a means to manage, monitor, and control AV equipment
 - 5.5.15.11. at least 4.5 GB of nonvolatile memory with at least 4.2 GB available to the user
 - 5.5.15.12. include License for User Interfaces
- 5.5.16. Touch Panel
- 5.5.16.1. 7" touchscreen with 1024x600 resolution and 24-bit color depth
 - 5.5.16.2. Robust, scratch, and smudge-resistant
 - 5.5.16.3. Quad-core processing and eight times more memory
 - 5.5.16.4. PoE provides power and communication over a single Ethernet cable
 - 5.5.16.5. Built-in speaker
 - 5.5.16.6. Light sensor adjusts screen brightness as the ambient room lighting changes
 - 5.5.16.7. High speed USB 2.0 port
 - 5.5.16.8. Automatic clock synchronization
 - 5.5.16.9. Energy-saving feature
 - 5.5.16.10. Fixed 65 degree viewing angle
- 5.5.17. Wireless Access Point
- 5.5.17.1. Interface: Gigabit Ethernet (RJ-45) Port *1 (Support IEEE802.3af PoE)

- 5.5.17.2. Power Supply: 802.3af/at PoE, 24V Passive PoE (+4,5pins; -7,8pins. PoE Adapter Included)
- 5.5.17.3. Antenna Type: 2.4GHz: 2* 4dBi, 5GHz: 2*4dBi
- 5.5.17.4. Wireless Standards: IEEE 802.11ac/n/g/b/a
- 5.5.17.5. Frequency: 2.4GHz and 5GHz
- 5.5.17.6. Signal Rate: 5GHz:Up to 867Mbps, 2.4GHz:Up to 300Mbps
- 5.5.17.7. Multiple SSIDs (Up to 16 SSIDs, 8 for each band)

- 5.5.18. Power Controller
 - 5.5.18.1. Material: Metal, plastic
 - 5.5.18.2. Frequency: 50/60Hz
 - 5.5.18.3. Current Load: 25A
 - 5.5.18.4. Load Voltage: AC 24-480V
 - 5.5.18.5. Voltage Control: DC 3-32

- 5.5.19. 16-Port Gigabit PoE Switch
 - 5.5.19.1. Standards and Protocols: IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3af, IEEE 802.3at, IEEE 802.1q, IEEE 802.1p
 - 5.5.19.2. Interface: 16 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 2 Gigabit SFP Ports
 - 5.5.19.3. Network Media: 10BASE-T: UTP category 3, 4, 5 cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 100BASE-TX: UTP category 5, 5e cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 1000BASE-T: UTP category 5, 5e, 6 or above cable (maximum 100m), EIA/TIA-568 100Ω STP (maximum 100m), 1000BASE-X MMF, SMF
 - 5.5.19.4. Switching Capacity: 36 Gbps
 - 5.5.19.5. Packet Forwarding Rate: 23.8 Mbps
 - 5.5.19.6. Packet Buffer Memory: 4.1 Mbit

- 5.5.20. Power Conditioner
 - 5.5.20.1. 19" rack mount power conditioner
 - 5.5.20.2. 8 x rear-panel IEC plus an additional front-panel convenience outlet
 - 5.5.20.3. 3-point protection: surge protection, peak voltage spike clamping, and RFI/EMI filtering
 - 5.5.20.4. Dedicated switch for powering rear-panel switched outlets
 - 5.5.20.5. Front-panel resettable 10-amp circuit breaker protects all connected gear
 - 5.5.20.6. Maximum surge current 6000A (8 20's pulse)

- 5.6. Room Scheduling System (for Boardroom, Auditorium, 5 Training Rooms, & 3 Meeting Rooms)
 - 5.6.1. 7" Wall Mount TouchLink Scheduling Panel
 - 5.6.1.1. 7" capacitive edge-to-edge glass touchscreen with 1024x600 resolution
 - 5.6.1.2. Gorilla Glass screen
 - 5.6.1.3. Can make on-demand reservations from the touch panel, computer, or any smartphone or tablet that connects to Microsoft Exchange, Office 365, Google Calendar, 25Live®, EMS, NFS, and Ad Astra
 - 5.6.1.4. Room Agent software provides easy integration with Microsoft Exchange 2007, 2010, 2013, 2016, and 2019, as well as Office 365 for convenient scheduling right from Outlook
 - 5.6.1.5. PIN access for scheduling panels configured with Microsoft 365, Exchange, Google, and 25Live, enabling users to reserve, book, check-in and extend a meeting via a PIN (English Only)
 - 5.6.1.6. Ability to set/view room capacity via TLS panel
 - 5.6.2. Surface Mount Kit
 - 5.6.3. 28-Port Gigabit Smart Switch with 24-Port PoE+
 - 5.6.3.1. IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE802.3z, IEEE 802.3ad, IEEE 802.3x, IEEE 802.3az, IEEE 802.1d, IEEE 802.1s, IEEE 802.1w, IEEE 802.1q, IEEE 802.1p, IEEE 802.1x
 - 5.6.3.2. Interface: 24x 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 4x Gigabit SFP Slots
 - 5.6.3.3. Network Media: 10BASE-T: UTP category 3, 4, 5 cable (maximum 100m), 100BASE-TX/1000Base-T: UTP category 5, 5e or above cable (maximum 100m), 1000BASE-X: MMF, SMF
 - 5.6.3.4. Switching Capacity: 56 Gbps
 - 5.6.3.5. Packet Forwarding Rate: 41.7 Mbps
 - 5.6.3.6. Packet Buffer Memory: 4.1 Mbit
 - 5.6.4. Smart Podium (Podium with LCD Monitor)
 - 5.6.4.1. Overall Width x Height x Depth: 32.0" x 47.0" x 17.3"
 - 5.6.4.2. Shelf Width x Depth: 23.3" x 8.0"
 - 5.6.4.3. Base Width x Depth: 30.0" x 17.0"
 - 5.6.4.4. Material: Steel, Tempered Glass or Acrylic Glass (for the display cover)
 - 5.6.4.5. Finish: Powder-Coated, Matte

- 5.6.4.6. Color: Dark Gray or Black
- 5.6.4.7. Placement Type: Floor Standing
- 5.6.4.8. Orientation: Portrait
- 5.6.4.9. Power Cord Length: 57.0"
- 5.6.4.10. Top Surface Width x Depth: 27.0" x 17.0"
- 5.6.4.11. Book Stop Depth: 0.375"
- 5.6.4.12. Screen Size: 43" LCD Screen HD
- 5.6.4.13. Refresh Rate:50/60Hz
- 5.6.4.14. Video Input Type: HDMI-In
- 5.6.4.15. Supported Photo Files: JPEG, BMP, PNG, GIF, JPG
- 5.6.4.16. Supported Video Files: MPEG4, AVI, MP4, MPEG, MKV, FLV, WMV, MOV
- 5.6.4.17. Supported Audio Files: MP3
- 5.6.4.18. Internal Storage: 32GB or higher
- 5.6.4.19. Aspect Ratio: 16:9
- 5.6.4.20. Operating System: Latest Android version
- 5.6.4.21. USB 2.0 or higher
- 5.6.4.22. RAM: 2GB or higher
- 5.6.4.23. Input Voltage AC 100-240V
- 5.6.4.24. Connectivity: Wi-Fi, Bluetooth

Podium Sample Design



5.6.5. Teleprompter

- 5.6.5.1. Width: 49cm – 53cm
- 5.6.5.2. Depth: 48cm – 52cm
- 5.6.5.3. Max Height: 196cm
- 5.6.5.4. Max Mirror Height Adjustment: 132-196cm
- 5.6.5.5. Weight: 8.5 kg - 12.5 kg
- 5.6.5.6. Mirror Incidence Adjustment: +-45 degrees
- 5.6.5.7. Mirror Size: 360mm x 380mm (or higher)

- 5.6.5.8. Monitor Size: 20.1" (54 cm) (or higher)
- 5.6.5.9. Inclusive of: 2 Mirror, 2 LCD Monitor 20", 2 Foot Pedestal, 1-Flight Case, 1-Teleprompter Software, 2-Side cover, 1 tablet controller compatible with the system requirement of teleprompter software

5.7. Gymnasium/Covered Court

5.7.1. Powered LoudSpeaker

- 5.7.1.1. System Type: 15IN Powered Loudspeaker
- 5.7.1.2. Woofer Size: 15"
- 5.7.1.3. Woofer Magnet: Ferrite
- 5.7.1.4. Woofer Voice Coil: 2"
- 5.7.1.5. Tweeter Size: 1"
- 5.7.1.6. Tweeter Magnet: Neodymium
- 5.7.1.7. Transducer Impedance: LF 4ohm rated, HF 8ohm rated
- 5.7.1.8. Max SPL: 128dB @1m/4Pi
- 5.7.1.9. Freq Range -10: 45Hz - 20kHz
- 5.7.1.10. Freq Range: -3 55Hz - 20kHz
- 5.7.1.11. Horizontal Dispersion: 90°
- 5.7.1.12. Vertical Dispersion: 60°
- 5.7.1.13. Power Rating: 1300W peak / 650 RMS
- 5.7.1.14. AC Power Input: 100V-120V or 220V-240V
- 5.7.1.15. Cooling: Passive
- 5.7.1.16. LED Indicators: 1 Power LED, 1 Limit LED, 1 Front LED, 2 Signal/ SSM LEDs
- 5.7.1.17. Input Impedance: 50k/100k un-balanced/balanced
- 5.7.1.18. Input Gain: $-\infty$ to +36db
- 5.7.1.19. Crossover Freq: 1.9 kHz
- 5.7.1.20. I/O 2 XLR Combo Jacks / BT, 1 XLR M Thru
- 5.7.1.21. Cabinet: PP+10% Talc
- 5.7.1.22. Grille: 16GA perforated steel with acoustically transparent black cloth backing
- 5.7.1.23. Suspension/Mount: 4 M10 Suspension points, 36mm Pole Socket, universal yoke bracket holes
- 5.7.1.24. Handles: 2, cable channel on bottom

5.7.2. Analog Mixer

- 5.7.2.1. 8+2 and 12+2 channel frame sizes
- 5.7.2.2. Built-in 24 bit digital effects processor
- 5.7.2.3. 32 FX settings
- 5.7.2.4. Tap Tempo and FX setting store function
- 5.7.2.5. 1 FX send on each channel
- 5.7.2.6. 1 configurable auxiliary bus
- 5.7.2.7. XLR-type and ¼" metal jack connector sockets
- 5.7.2.8. RCA phono stereo playback inputs and record outputs

- 5.7.2.9. 3-band EQ with a swept mid on mono inputs
 - 5.7.2.10. 3-band EQ on stereo inputs
 - 5.7.2.11. TRS insert sockets and inserts on all mono inputs and mix output
 - 5.7.2.12. Ten-segment LED output metering
 - 5.7.2.13. Intuitive and comprehensive solo system
 - 5.7.2.14. Headphone output
 - 5.7.2.15. Easily rack mountable
- 5.7.3. Wireless Microphone
- 5.7.3.1. Up to 88 MHz bandwidth, up to 32 channels
 - 5.7.3.2. Increased RF output power (10/30/50 mW)
 - 5.7.3.3. Transmission Range: up to 100 meters / 330 feet
 - 5.7.3.4. THD, total harmonic distortion $\leq 0.9\%$
 - 5.7.3.5. Signal-to-noise ratio ≥ 115 dBA
 - 5.7.3.6. Equalizer with Preset 1: Flat; Preset 2: Low Cut (-3 dB at 180 Hz); Preset 3: Low Cut/High Boost (-3 dB at 180 Hz, +6 dB at 10 kHz) Preset 4: High Boost (+6 dB at 10 kHz)
 - 5.7.3.7. Wireless handheld transmitter with AF frequency response 80 – 18,000 Hz; Frequency stability $\leq \pm 15$ ppm, Power supply operates on two rechargeable AA batteries for up to 5 to 10 hours; With 4 sets (8 pcs) of compatible rechargeable batteries with battery charger; Transmission frequency Max. 3520 transmission frequencies, adjustable in 25 kHz steps, 20 frequency banks, each with up to 32 factory-preset channels, no intermodulation, 6 frequency banks with up to 32 programmable channels
 - 5.7.3.8. Microphone Stand - Boom Mic Stand with boom length at 30" max; Tripod type with base spread at 23"; Adjustable height, from 32" to 61.5"; Adjustable angle; Can be easily fold in and out packing and setting-up; Nonslip rubber feet with grooves; Color black; With microphone holder or clip
- 5.7.4. Speaker Stand
- 5.7.4.1. Heavy-duty tripod speaker stand
 - 5.7.4.2. Standard 1 3/8" pole
 - 5.7.4.3. Adjustable height and base width knobs
 - 5.7.4.4. Maximum height of 95"
 - 5.7.4.5. 77lb handling capacity
 - 5.7.4.6. Steel construction
- 5.7.5. XLR Connectors

- 5.7.5.1. Customized Audio Cable (Female-Female Connector) 20meters
- 5.7.5.2. Customized Audio Cable (Male-Female Connector) 20meters

6.0. Bill of Quantities

| Item | Equipment | Quantity | Unit |
|---|--|----------|-------|
| MEETING ROOMS 1, 2, AND 3 | | | |
| 1 | 75" Commercial 4K Smart UHD TV Display | 3 | units |
| 2 | Ceiling Bracket for Smart TV | 3 | units |
| 3 | PTZ Camera | 3 | units |
| 4 | SDI-USB Capturing Device | 3 | units |
| 5 | USB Patch cord (1m) | 3 | units |
| 6 | Multimedia Projector | 1 | unit |
| 7 | Motorized Projector Lift | 1 | unit |
| 8 | Motorized Projection Screen - 6.75' x 12' | 1 | unit |
| 9 | 4K/60 HDMI Wall Transmitter | 4 | units |
| 10 | 4K/60 HDMI Receiver | 4 | units |
| 11 | Wireless Presentation Device | 3 | units |
| 12 | Digital Matrix Processors | 1 | unit |
| 13 | Ceiling Speaker | 18 | units |
| 14 | Power Amplifier | 3 | units |
| 15 | Wireless Handheld Microphone | 3 | units |
| 16 | Wireless Lapel Microphone | 3 | units |
| 17 | Control Processor | 1 | unit |
| 18 | Wall Button Panel | 2 | units |
| 19 | Controller | 1 | unit |
| 20 | IR Emitter | 3 | units |
| 21 | 16-Port Gigabit PoE Switch | 1 | unit |
| 22 | Wireless Access Point | 2 | units |
| 23 | Power Controller | 3 | units |
| 24 | Equipment Rack - 5ft with casters, door, lock, and power strip | 1 | unit |
| TRAINING ROOMS 1, 2, 3 AND 4 (40 PAX / ROOM) | | | |
| 25 | Monitor Display | 4 | units |
| 26 | Mobile TV Stand | 4 | units |
| 27 | PTZ Camera | 3 | units |
| 28 | SDI-USB Capturing Device | 3 | units |
| 29 | USB Patch cord (1m) | 3 | units |
| 30 | Matrix Switcher | 1 | unit |
| 31 | 4K/60 HDMI Wall Transmitter | 4 | units |

| | | | |
|---------------------------------|---|----------|-------|
| 32 | 4K/60 HDMI Receiver | 4 | units |
| 33 | HDMI Transmitter | 4 | units |
| 34 | HDMI Receiver | 4 | units |
| 35 | Wireless Presentation Device | 4 | units |
| 36 | Digital Matrix Processors | 1 | unit |
| 37 | Ceiling Speaker | 36 | units |
| 38 | Power Amplifier | 4 | units |
| 39 | Wireless Handheld Microphone with Microphone Stand | Mic: 12 | units |
| | | Stand: 8 | units |
| 40 | Wireless Lapel Microphone | 4 | units |
| 41 | Control Processor | 1 | unit |
| 42 | Wall Button Panel | 2 | units |
| 43 | Controller | 2 | units |
| 44 | IR Emitter | 6 | units |
| 45 | 16-Port Gigabit PoE Switch | 1 | unit |
| 46 | Wireless Access Point | 2 | units |
| 47 | Power Controller | 4 | units |
| 48 | Equipment Rack - 5ft with casters, door, lock and power strip | 1 | unit |
| TRAINING ROOM 5 (35 PAX) | | | |
| 49 | Monitor Display | 1 | unit |
| 50 | Mobile TV Stand | 1 | unit |
| 51 | PTZ Camera | 1 | unit |
| 52 | SDI-USB Capturing Device | 1 | unit |
| 53 | USB Patch cord (1m) | 1 | unit |
| 54 | 4K/60 HDMI Wall Transmitter | 1 | unit |
| 55 | 4K/60 HDMI Receiver | 1 | unit |
| 56 | HDMI Transmitter | 1 | unit |
| 57 | HDMI Receiver | 1 | unit |
| 58 | Wireless Presentation Device | 1 | unit |
| 59 | Analog Audio Mixer | 1 | unit |
| 60 | Ceiling Speaker | 8 | units |
| 61 | Power Amplifier | 1 | unit |
| 62 | Wireless Handheld Microphone with Microphone Stand | Mic: 3 | unit |
| | | Stand: 2 | unit |
| 63 | Wireless Lapel Microphone | 1 | unit |
| 64 | Equipment Rack - 3ft with casters, door, lock and power strip | 1 | unit |
| 65 | Wall Mount Touchpanel | 1 | unit |
| 66 | IR Emitter | 1 | unit |
| 67 | Wireless Access Point | 1 | unit |
| 68 | Power Controller | 1 | unit |

| BOARDROOM (60 PAX) | | | |
|---------------------------|---|----|-------|
| 69 | 55" Video Wall Monitor Display | 16 | units |
| 70 | Universal Pop-Out Video Wall Mount | 16 | units |
| 71 | 55" Smart Commercial TV | 3 | units |
| 72 | Mobile TV Cart for 55" | 3 | units |
| 73 | Scaling Presentation Switcher | 1 | unit |
| 74 | HDMI Transmitter | 1 | unit |
| 75 | HDMI Receiver | 5 | units |
| 76 | Four Output Distribution Amplifier | 1 | unit |
| 77 | Wireless Presentation Device | 1 | unit |
| 78 | PTZ Camera | 3 | units |
| 79 | SDI-USB Capturing Device | 3 | units |
| 80 | HDMI to USB video converter | 1 | unit |
| 81 | USB Hub | 1 | unit |
| 82 | 15m USB Extender | 2 | units |
| 83 | PC Server | 1 | unit |
| 84 | Boundary Microphone | 32 | units |
| 85 | Wireless Handheld Microphone | 2 | units |
| 86 | Wireless Lapel Microphone | 1 | unit |
| 87 | Digital Signal Processor | 2 | units |
| 88 | Digital Signal Expansion Processor | 2 | units |
| 89 | Ceiling Speaker | 14 | units |
| 90 | Power Amplifier | 1 | unit |
| 91 | 4K/60 HDMI Distribution Amplifiers | 1 | unit |
| 92 | Control Processor | 1 | unit |
| 93 | Controller | 1 | unit |
| 94 | IR Emitter | 6 | units |
| 95 | 16-Port Gigabit PoE Switch | 1 | unit |
| 96 | Wireless Access Point | 2 | units |
| 97 | Power Controller | 4 | units |
| 98 | Equipment Rack - 5ft with casters, door, lock and power strip | 1 | unit |
| Auditorium | | | |
| 99 | P3.9mm Indoor LED Wall Display | 1 | lot |
| 100 | PTZ Camera | 1 | unit |
| 101 | SDI-USB Capturing Device | 1 | unit |
| 102 | Multifunctional Camera Controller | 1 | unit |
| 103 | HDMI Switchers | 1 | unit |
| 104 | Wireless Presentation Device | 1 | unit |
| 105 | HDMI Transmitter | 1 | unit |
| 106 | HDMI Receiver | 1 | unit |

| | | | |
|---|--|----|-------|
| 107 | Digital Matrix Processors | 1 | unit |
| 108 | Powered Speaker with custom mounting bracket | 4 | units |
| 109 | Power Subwoofer | 2 | units |
| 110 | Powered Floor Monitor Speaker | 2 | units |
| 111 | Wireless Handheld Microphone | 4 | units |
| 112 | Microphone Stand | 4 | units |
| 113 | Wireless Lapel Microphone | 2 | units |
| 114 | Control Processor | 1 | unit |
| 115 | Touch Panel | 1 | unit |
| 116 | Wireless Access Point | 1 | unit |
| 117 | Power Controller | 2 | units |
| 118 | 16-Port Gigabit PoE Switch | 1 | unit |
| 119 | Power Conditioner | 1 | unit |
| 120 | Smart Podium (Podium with LCD Monitor) | 1 | unit |
| 121 | Teleprompter | 1 | set |
| ROOM SCHEDULING SYSTEM (for Boardroom, Auditorium, 5 x Training rooms & 3 Meeting rooms) | | | |
| 122 | 7" Wall Mount TouchLink Scheduling Panel | 10 | units |
| 123 | Surface Mount Kit | 10 | units |
| 124 | 28-Port Gigabit Smart Switch with 24-Port PoE+ | 1 | unit |
| GYMNASIUM/COVERED COURT | | | |
| 125 | Powered Loud Speaker | 4 | units |
| 126 | Analog Mixer | 1 | unit |
| 127 | Wireless Microphone with Microphone Stand | 2 | unit |
| 128 | Speaker Stand | 4 | units |
| 129 | Customized Audio Cable (Female-Female Connector) 20meters | 4 | sets |
| 130 | Customized Audio Cable (Male-Female Connector) 20meters | 1 | set |

| Item | Description | Quantity | Unit |
|------|---|----------|------|
| | Installation Service, Equipment and Accessories | | |
| 1 | Labor and Tools including Configuration, as-built plans and materials <ul style="list-style-type: none"> - Cables, connectors, and other materials necessary for the installation of equipment - Acoustic treatment for echo and reverberation - Configuration and system programming - Installation, termination, testing and commissioning - Training and handover | 1 | lot |

7.0. PROJECT DURATION

This Project shall be completed within one hundred fifty (150) calendar days from the receipt of the Notice to Proceed, in accordance with the following schedule of activities:

| Item No. | Deliverable | Target Delivery Schedule |
|----------|--|---|
| 1 | Work Plan, lay-out design, and curriculum vitae of the Project Manager and Technical Personnel | Within 10 working days from receipt of the Notice to Proceed |
| 2 | Technical Training | Within 5 working days from the date of Project Completion |
| 3 | Inspection | Within 7 working days from the date of Project Completion |
| 4 | Correction of Punch List | Within 10 calendar days from the date of inspection |
| 5 | Project Documentation | Within 10 working days from the date of inspection |
| 6 | Final Inspection and Acceptance | Within 5 working days upon completion of the correction of punch list |
| 7 | Supply, delivery, installation, configuration, and commissioning of all equipment, hardware, and components, including technical training, inspection, correction of punch list, project documentation, and acceptance | Within 150 calendar days from receipt of the Notice to Proceed |

Note: The GPPB-TSO shall be given a minimum seven (7) working day period to review and evaluate each report submitted by the SP. The period allocated for the GPPB-TSO’s review and evaluation shall be deemed not to interrupt or stop the completion period of specific work necessary to be delivered by the SP.

8.0. RESPONSIBILITIES OF THE GPPB-TSO

- 8.1. The IMD of the GPPB-TSO shall be the counterpart project team of the SP and shall be responsible for the overall supervision of the Project and assist the SP in the successful implementation of the Project.
- 8.2. Provide the SP pertinent data and other technical information necessary in the for the implementation of the project, such as but not limited to As-Built Plan of the Nee Building.

- 8.3. Provide a suitable work area to be used by the SP during the project implementation.
- 8.4. The GPPB-TSO shall pay the SP in accordance with the schedule of payment as specified in this TOR.
- 8.5. It shall allow the Supplier/Service Provider and its workers to access the facilities and other areas covered by the scope of work and ensure works and staff are compliant to Health Safety Standards.
- 8.6. Allow the SP to work during Saturday, Sunday, and holidays if necessary and subject to necessary approval of the GPPB-TSO.

9.0 OTHER CONDITIONS

- 9.1. The GPPB-TSO shall not be responsible for any claim for personnel injury or damage including death caused to employees of the SP in the performance of their duties under the Project.
- 9.2. The SP shall abide by all the GPPB-TSO policies and procedures on safety. For security purposes, the SP shall submit the list of names of its technical team/group assigned for the project.
- 9.3. The SP shall make all necessary coordination with the offices concerned of the GPPB-TSO as regards the delivery of the units.
- 9.4. The SP shall submit to IMD weekly accomplishment report for proper monitoring of the project.

10.0 APPROVED BUDGET FOR THE CONTRACT

The Approved Budget for the Contract is Twenty Million Pesos (PhpP20,000,000.00), inclusive of all applicable duties and taxes.

11.0. PAYMENT SCHEME/SCHEDULE

The payment schedule shall be as follows, subject to existing applicable budgeting, accounting, and auditing rules, laws, and regulations:

| Item No. | Deliverables | % Payments of Total Value of the Contract |
|-----------------|---|--|
| 1 | Supply and Delivery of Equipment and submission of Work Plan | 15% |
| 2 | Installation, Configuration, and System Programming, Testing, and Commission of Equipment and Issuance of Certificate of Completion | 45% |
| 3 | Users Training and Issuance of Final Acceptance Certificate | 40% |
| TOTAL | | 100% |

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

[If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

[If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

[If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

[If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
 - a. Carefully examining all of the Bidding Documents;
 - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
 - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

IN WITNESS WHEREOF, I have hereunto set my hand this ___ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]

Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Price Schedule for Goods Offered from Within the Philippines
[shall be submitted with the Bid if bidder is offering goods from within the Philippines]

For Goods Offered from Within the Philippines

Name of Bidder _____ Project ID No. _____ Page ___ of ___

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------|-------------|-------------------|----------|-------------------------|---|--|--|--|--|
| Item | Description | Country of origin | Quantity | Unit price EXW per item | Transportation and all other costs incidental to delivery, per item | Sales and other taxes payable if Contract is awarded, per item | Cost of Incidental Services, if applicable, per item | Total Price, per unit (col 5+6+7+8) | Total Price delivered Final Destination (col 9) x (col 4) |
| | | | | | | | | | |

Name: _____

Legal Capacity: _____

Signature: _____

Duly authorized to sign the Bid for and behalf of: _____

Bid Form for the Procurement of Goods

[shall be submitted with the Bid]

BID FORM

Date : _____
 Project Identification No. : _____

To: *[name and address of Procuring Entity]*

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to *[supply/deliver/perform]* *[description of the Goods]* in conformity with the said PBDs for the sum of *[total Bid amount in words and figures]* or the total calculated bid price, as evaluated and corrected for computational errors, and other bid modifications in accordance with the Price Schedules attached herewith and made part of this Bid. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein or in the Price Schedules,

If our Bid is accepted, we undertake:

- a. to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements of the Philippine Bidding Documents (PBDs);
- b. to provide a performance security in the form, amounts, and within the times prescribed in the PBDs;
- c. to abide by the Bid Validity Period specified in the PBDs and it shall remain binding upon us at any time before the expiration of that period.

[Insert this paragraph if Foreign-Assisted Project with the Development Partner:

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

| Name and address of agent | Amount | Purpose of Commission or gratuity |
|---------------------------|--------|-----------------------------------|
|---------------------------|--------|-----------------------------------|

| | | |
|--|--|--|
| | | |
| | | |
| | | |

(if none, state “None”)]

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the Lowest Calculated Bid or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements pursuant to the PBDs.

The undersigned is authorized to submit the bid on behalf of *[name of the bidder]* as evidenced by the attached *[state the written authority]*.

We acknowledge that failure to sign each and every page of this Bid Form, including the attached Schedule of Prices, shall be a ground for the rejection of our bid.

Name: _____

Legal capacity: _____

Signature: _____

Duly authorized to sign the Bid for and behalf of: _____

Date: _____

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION **Project Identification No.: *[Insert number]***

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
 - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
 - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
 - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of *[month]* *[year]* at *[place of execution]*.

*[Insert NAME OF BIDDER OR ITS AUTHORIZED
REPRESENTATIVE]*

[Insert signatory's legal capacity]

Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

