BAGONG PILIPINAS

PHILIPPINE PORTS AUTHORITY

SUPPLY, DELIVERY AND INSTALLATION OF COMMUNICATIONS SYSTEMS FOR PPA HEAD OFFICE

BID DOCS
ASD-009-2025

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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.

BAGONG PILIPINAS

PHILIPPINE PORTS AUTHORITY

INVITATION TO BID

FOR THE SUPPLY, DELIVERY AND INSTALLATION OF COMMUNICATIONS SYSTEMS FOR PPA HEAD OFFICE

The Philippine Ports Authority, through the Corporate Budget of the Authority for CY 2025, intends to apply the sum of **P40,000,000.00** being the Approved Budget for the Contract (ABC) to payments under the contract for the **FOR THE SUPPLY, DELIVERY AND INSTALLATION OF COMMUNICATIONS SYSTEMS FOR PPA HEAD OFFICE (ASD-009-2025)**. Bids received in excess of the ABC shall be automatically rejected at bid opening.

The Philippine Ports Authority now invites bids for the above Procurement Project. Completion of services is required within One Hundred Twenty (120) calendar days from receipt of the winning bidder of the Notice to Proceed (NTP). 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).

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) 9184. 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 5183.

Prospective Bidders may obtain further information from the Philippine Ports Authority Bids and Awards Committee (BAC) and inspect the Bidding Documents at the address given below during 8:00 a.m. to 5:00 p.m., Monday to Friday.

A complete set of Bidding Documents may be acquired by interested Bidders on **07 November 2025** 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 (P25,000.00) Pesos.** The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person.

The Philippine Ports Authority's Bids and Awards Committee will hold a Pre-Bid Conference on **19 November 2025 at 2:00 p.m.** at the PPA Function Room, 7th Floor, PPA Bldg., Bonifacio Drive, South Harbor, Port Area, Manila, which shall be open to all prospective bidders.

Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below on or before **02 December 2025 at 1:00 p.m.** Late bids shall not be accepted.

All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.

Bid opening shall be on **02 December 2025 at 2:00 p.m.** at the 7th Floor, PPA Building, A. Bonifacio Drive, South Harbor, Port Area, Manila. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

The Philippine Ports Authority 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.

For further information, please refer to:

BAC Secretariat, Philippine Ports Authority
5th Floor, PPA Bldg., A. Bonifacio Drive,
South Harbor, Port Area, Manila
Telephone Nos. 527-47-35
527-83-56 to 83 loc. 539
PPA Website: www.ppa.com.ph
PhilGEPS Website: www.philgeps.gov.ph

MARK JON S. PALOMAR
Chairperson, PPA Head Office Bids and Awards Committee for the Procurement of Goods and Consultancy Services (HO-BAC-PGCS)

1. Scope of Bid

The Procuring Entity, PHILIPPINE PORTS AUTHORITY wishes to receive Bids for the **SUPPLY, DELIVERY AND INSTALLATION OF COMMUNICATIONS SYSTEMS FOR PPA HEAD OFFICE** with identification number **ASD-009-2025.**

The Procurement Project (referred to herein as "Project" is composed of a single lot, the details of which are described in Section VII (Technical Specifications).

2. Funding Information

2.1. The Philippine Ports Authority through its corporate budget for the Calendar Year (CY) 2025 in the amount of **FORTY MILLION PESOS (PhP40,000,000.00)**.

2.2. The source of funding is the Corporate Budget of the PHILIPPINE PORTS AUTHORITY.

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 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:

Subcontracting is not allowed.

8. Pre-Bid Conference

The Procuring Entity will hold a Pre-Bid conference for this Project on the specified date and time and either at its physical address at the PPA Function Room, 7th Floor, PPA Building, Bonifacio Drive, South Harbor, Port Area, Manila and/or through videoconferencing/webcasting 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 e.

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 **Section VII (Technical Specifications).**

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 Philippine Pesos.

14. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration 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 date of the opening of bids. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each bidder shall submit one copy of the first and second components of the 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 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 15 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 Project having several items that shall be awarded as one 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**.

Bid Data Sheet

ITB Clause	
5.3	For this purpose, contracts similar to the Project shall be: a. a contract which involves the installation of electrical and signal wiring for electronic communication, alarm or notification systems, such as but not limited to Public Address Systems, Fire Detection and Alarm Systems, Fire Sprinkler System and Seismic Accelerograph Systems. b. completed within the last five (5) years prior to the deadline for the submission and receipt of bids.
7.1	Subcontracting is not allowed.
12	The price of the Goods shall be quoted DDP *[Manila]* or the applicable International Commercial Terms (INCOTERMS) for this Project.
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts: a. The amount of not less than EIGHT HUNDRED THOUSAND PESOS (PhP800,000.00), 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 TWO MILLION PESOS (PhP2,000,000.00) if bid security is in Surety Bond.
15	Each Bidder shall submit **ONE (1) original and SIX (6) copies** of its Technical and Financial Components of its Bid in two (2) separate sealed bid envelopes, which should be submitted simultaneously. Each of the bid documents should be individually sealed. All bid documents shall be book-bound (stitched) with hard cover and properly labelled with index tabs. Failure to comply with the said requirements is a ground for automatic disqualification of the bidder.
19.3	Partial bid is not allowed. The goods are grouped in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20.1	No additional requirements.
21.1	No additional requirements.

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 prior to 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 IV (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	**Delivery and Documents –** 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: *[For Goods supplied from abroad, state:]* "The delivery terms applicable to the Contract are DDP delivered [*indicate place of destination*]. In accordance with INCOTERMS." *For Goods supplied from within the Philippines, state:*] "The delivery terms applicable to this Contract are delivered *[indicate place of destination].* Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination." Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements). For purposes of this Clause the Procuring Entity's Representative/s at the Project Site is the **Acting Manager, Administrative Service Department, Philippine Ports Authority Head Office, Manila.** **Incidental Services –** The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements: 1. Performance or supervision of on-site assembly and/or start-up of the supplied Goods; 2. Furnishing of tools required for assembly and/or maintenance of the supplied Goods; 3. Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and 4. 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. 5. The winning bidder shall be responsible for integrating the Public Address System (PA) System with the existing PPA systems, including the Fire Detection and Alarm System, Fire Sprinkler System and Seismic Accelerograph System to ensure seamless interoperability and functionality. 6. Warranty. Each unit shall be free from any defects in materials and workmanship. The warranty shall be at least one (1) year from the date

	of the issuance of the Certificate of Completion and Acceptance. During this period, winning bidder shall bear all costs related to any repairs and / or replacement or parts of the equipment. Certification must be submitted as part of the technical proposal. 7. Spare Parts. The bidder shall warrant the availability of spare parts for a period of at least five (5) years from the purchase of the subject units. Certification must be submitted as part of the technical proposal. 8. After-Sales Services. The bidder shall provide for technical support, either through phone or on-site visits, if necessary. If the PA and Wireless Conference Microphone Systems are malfunctioning and inoperable despite the phone supported troubleshooting, the winning bidder shall provide maintenance service to the site within seventy-two (72) hours after notification at no cost to PPA. 9. Training/Orientation. Training/orientation on the use and maintenance of the equipment shall be conducted by the bidder for at least five (5) designated PPA personnel immediately after installation, with a minimum duration of forty (40) hours, covering both theoretical instruction and hands-on practical sessions, at no cost to PPA. 10. Equipment Manual. One set of equipment manual shall be included for each unit of equipment delivered. 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. **Spare Parts –** The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier: a. such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and b. in the event of termination of production of the spare parts: 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. The spare parts and other components required are listed in **Section VI (Schedule of Requirements)** and the cost thereof are included in the contract price. The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spare parts or components for the Goods for a period of five (5) years after the last day of manufacturing of the specific model.

Spare parts or components shall be supplied as promptly as possible, but in any case, within seven (7) days from placing the order.

Packaging –

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.

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.

The outer packaging must be clearly marked on at least four (4) sides as follows:

Name of the Procuring Entity
Name of the Supplier
Contract Description
Final Destination
Gross weight
Any special lifting instructions
Any special handling instructions
Any relevant HAZCHEM classifications

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.

Transportation –

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.

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.

	Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered force majeure. 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. **Intellectual Property Rights –** 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.
2.2	Payment shall be made in accordance with the following: 1. Payment of 35% of the contract price shall be made after Delivery and Inspection of at least 50% of the equipment and components of the PA and Wireless Conference Microphone Systems. 2. Payment of 35% of the contract price shall be made upon Delivery and Inspection of the remaining equipment and components of the PA and Wireless Conference Microphone Systems. 3. Payment of the remaining 30% of the contract price shall be made after Installation, Testing and Commissioning of the PA and Wireless Conference Microphone Systems. Final billing shall only be processed upon the issuance of the Certificate of Completion and Acceptance. 4. An inspection and acceptance report must be duly accomplished by the procuring entity for payment purposes.
4	Testing shall be conducted during commissioning to ensure that all equipment and components of the PA System and Wireless Conference Microphone System are fully operational and compliant with the technical specifications. The test shall include the following: a. Functionality Test – verification of proper operation of all microphones, speakers, amplifiers and control units. b. Coverage Test – assessment of audio clarity, volume and distribution across designated areas.

	c. Reliability/Endurance Test – continuous operation for 4-8 hours to confirm system stability. d. Wireless Performance Test – checking range, signal strength and absence of interference for the wireless conference microphones. e. Broadcast Test – simulation of system announcements to confirm the capability of the PA System to deliver clear and audible messages across all designated areas.

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.

Item Number	Description[1]	Quantity	Total	Delivered, Weeks/Months
	Supply, Delivery and Installation of Communications Systems for PPA Head Office, divided into two (2) stages: a. Delivery and inspection of the PA System and Wireless Conference Microphone System will be done at the supplier's warehouse by PPA Head Office representatives. b. Delivery, Installation, Testing and Commissioning of the PA System and Wireless Conference Microphone System to PPA Head Office.			Shall be completed within one hundred twenty (120) calendar days from receipt of the winning bidder of the Notice to Proceed.

Section VII. Technical Specifications

Technical Specifications

Item	Specification	Statement of Compliance
		[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.]
	SUPPLY, DELIVERY AND INSTALLATION OF COMMUNICATIONS SYSTEMS FOR PPA HEAD OFFICE	
	SCOPE OF SERVICES	

	The PA System and Wireless Conference Microphone System shall be supplied, delivered and installed following the 2 stages of the contract. The contract shall be divided into two (2) stages: a. Delivery and inspection of the PA System and Wireless Conference Microphone System will be done at the supplier's warehouse by PPA Head Office representatives. b. Delivery, Installation, Testing and Commissioning of the PA System and Wireless Conference Microphone System to PPA Head Office. The deployment list of the equipment and components is attached hereto as Annex "A" of the Terms of Reference.	
	TECHNICAL SPECIFICATIONS **A. IP NETWORK SERVER** • Can support Internet and telecommunications network integration, and HD voice conversation between fixed-line/mobile numbers and IP network terminals; provide low-latency broadcast, intercom, conference, recording, monitoring and other functions in WAN environment. • Can support seamless bridge with well-known Voice over Internet Protocol (VOIP) servers to realize the interaction of voice, video and text information between multiple systems. • Support linkage with mainstream cameras. • Can log in the system through any PC or mobile platform browser. • With background broadcast, emergency broadcast, voice intercom, video intercom, monitoring and video monitoring functions. • Support custom grouping operations on all zones, for broadcast and volume adjustment. • Can display group information, zone status (switch/volume/real-time program name), program list, and timing point information.	

- Support broadcast program operations for one or more groups/zones.

- Can create multiple timing schemes with multiple timing points, and support timing schemes backup storage and direct import/export, as well as add/modify/delete timing points and send them to a designated zone.

- Quick upgrade and maintenance (support cloud upgrade, remote upgrade, and local upgrade).

CPU	Intel® Core™ I5 4430 3.0GHz
RAM	4G/DDR3
Hard Disk	120G SSD
Display Screen	17.3"x1920x1080, resistive touch screen
Video Interface	VGA
USB	Front: USB x 2 Rear: USB x 4
Protocols	TCP/IP, UDP, ICMP, IGMP (Multicast)
Network	RTL8111F Gigabit network card chip, support WOL/PXE
Power Input	ATX power supply (AC180-240V ~/47-63Hz/7/3.5A)
Environment	-10°C~50°C, ≤90%RH (No condensation)
Package Size (HxWxD)	470x535x365mm
Product Size (HxWxD)	308x483x340mm
Gross Weight	23.4kg
Net weight	13.4kg

B. NETWORK FIRE COLLECTOR

- Support 32 fire alarm signal access, support short circuit and 5V-24V signal.

- 32-way independent control, support adjacent zone alarm.

- Can customize the alarm to play the sound through the management software.

- Can have multiple devices connected to the network; control area can be extended.

Channel	32
Way of Display	LED

Support Agreement	TCP/IP, UDP, ICMP, IGMP (Multicast)
Activate Neighbor	Multiple, Programmable
Trigger Signal Level	5V-24V
Protection	AC fuse x 1
Input Mode	Short circuit, 5V~24V
Power Input	~100V-240V 50Hz/60Hz
Network	RJ45 (10/100M)
Size (HxWxD)	44x430x213mm
Product Weight	2.3kg

C. PAGING STATION

- 10.1 inch TFT true color LCD display and capacitive touch screen, support five-point touch
- With single selection, multiple selection, and one-click all selection.
- Multi-function operation such as intercom, broadcast, monitor, supervise, and music can be performed on zones, multiple zones.
- Only the zones of interest can be displayed as needed.
- Can view the status information of the zone
- Support terminal call reminder, custom ring tone.
- Network interface that supports POE power supply.
- With multi-level indication function, the paging sound pressure is more intuitive.
- The screen backlight illumination time and brightness are adjustable to achieve energy-saving operation.
- Has user password and rights management.

Line Output	Output amplitude	1.0±0.1V
	Frequency Response	350Hz-16kHz
	Distortion	≤1%
	SNR	≥71dB
	Channel	Mono
MIC In	Input Sensitivity	60-110mV±5Mv

	Frequency Response	350Hz~3KHz
	Dynamic Range	≥12dB
Amplifier Output	Power	1W
	Frequency Response	350Hz~10KHz
	Distortion	≤1%
	SNR	≥71dB
Network Protocol	TCP/IP, UDP, IGMP, RTP, SIP	
PoE Power Supply	IEEE 802.3af	
Interface	Internet Interface	RJ45 (10/100M)
	Audio Output Interface	3.5mm headphone socket
Other Specifications	Input Power	12VDC/2.5A
	Working Temperature	-20 - +50°C
	Dimensions (HxWxD) (mm)	114x330x150
	Package Size	165x370x230
	Net Weight	1.7kg
	Gross Weight	3kg

D. 2 CHANNEL NETWORK AUDIO COLLECTOR

- Built-in independent control module, sound source real-time acquisition
- Each module can run simultaneously
- The name of each audio source input can be customized by management software
- 10/100M adaptive, support DHCP/IP settings

Frequency Response	20Hz – 20kHz
Protocols	TCP/IP, UDP, ICMP, IGMP (Group Broadcast)
Audio Mode	16 CD Sound Quality
SNR	>85dB
Input Sensitivity	1.0V
Power Input	~100-240V/50-60Hz
Network	RJ45 (10/100M)
Package Size	105x280x540mm
Product Size	44x430x213mm
Gross Weight	2.9kg
Net Weight	1.8kg

E. 8 CHANNELS SEQUENCE CONTROLLER

- Independent 8-channel high power output, universal socket which supports multiple three-pole power socket, such as Chinese Standard Socket, American Standard Socket and European Standard Socket
- Maximal output of single channel is 10A, and total input current capacity is 10A
- On/off status of eight channels could be controlled and displayed on the front panel. On/off of all channels could be realized through the panel one-click switch

Power Output	8 channels, universal socket
Single-channel Maximum Load	10A
Control Manner	Manual sequential startup, external short-circuit signal triggered startup
Power Capacity	Total 110-240V, 10A
Input Power	AC110-240V/50Hz
Sequence Interval	About 0.5s
Package Size (LxWxH) (mm)	534x350x110
Machine Size (LxWxH) (mm)	484x225x44
Net Weight	4.4kg
Gross Weight	5kg

F. MEDIA PLAYER WITH CD/USB/FM/BLUETOOTH

- Full light touch button control, LCD display with high brightness and clear screen
- With MP3 player, built-in USB interface, SD slot, CD disc tray;
- High-end CD suction movement;
- Bluetooth function
- CD/MP3/MP4/VCD/DVD playback function

- Built-in radio function, digital radio module with high sensitivity
- With automatic search radio and storage function, AM/FM radio can store 40 stations respectively
- The radio has a power-off memory function, which can start to work automatically after powered on
- One-way Bluetooth output, one-way radio signal output, and one-way CD/MP3 audio output
- One-way alternative output of Bluetooth, radio signal or CD/MP3 audios
- Support remote control via the IR remote controller.

Laser Player	Maximum Output Voltage 1KHz – 10dB Signal	1000±100mV
	Frequency Response Range	20-19KHz(±1dB)
	THD	≤0.3%
	Noise	≤0.02mv
USB	Maximum Output Voltage	1000±100mV
	Frequency Response Range	20-19KZHz(±1dB)
	THD	≤0.3%
	Noise	≤0.02mv
SD	Maximum Output Voltage	1000±100mV
	Frequency Response Range	20-19KHz (±1dB)
	THD	≤0.3%
	Noise	≤0.02mv
Bluetooth	Maximum Output Voltage 1KHz – 10dB	1000±100mV
	Frequency Response Range	20-19KHz (±2dB)
	THD	≤0.3%
	Noise	≤0.06mV
	Distance	Best within 10m
Radio Function (FM/AM)	Maximum Output Voltage	1200±100mV
	Amplitude Limiting Sensitivity	-80dB
	Frequency Response Range	40-10KHz (±3dB)
	Distortion	≤0.2%
	SNR	≥60dB
	Store/Memory Function	40 pcs
Protection	AC Fuse	

Power Supply	AC110-120V/60Hz/35W AC220-240V/50Hz/35W
Outer Packing Dimension (mm)	(LxWxH) 534x350x110
Machine Dimension (mm)	(LxWxH) 483x210x44
Gross Weight	4.4kg
Net Weight	3.65kg

G. 24 PORT GIGABIT SWITCH

- 24 10/100/1000M adaptive RJ45 ports
- All ports have line-speed forwarding capabilities
- Support port auto-flip (Auto MDI/MDIX) function
- Support switching the switch working mode by toggle switch
- Plug and play, rack-mountable

Network Standards	IEEE 802.3, EEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x
Port	24 10/100/1000Mbps RJ45 ports
Indicator Light	Each port has 1 Link/Ack, Speed Indicator Light Each device has 1 Power Indicator Light
Performance	Store and forward Support 8K MAC address table depth
Usage Environment	Operating temperature: 0°C~40°C Storage temperature: -40°C~70°C Operating humidity: 10%~90%RH, non-condensing Storage humidity: 5%~90%RH, non-condensing
Input Power	100-240V~50/60Hz
Dimensions (LxWxH)	440mm x 180mm x44mm
Three-mode Switching	Standard Switching, VLAN isolation, network cloning

H. 19" AUDIO RACKS WITH DOOR AND FAN

- 19" standard design, comply with international standards
- Built-in 2-6 plates, convenient for use
- Excellent cooling design, with 2 electric cooling fans
- Tempered explosion proof glass, safe and reliable
- Equipped with 19" power electric outlets, well grounded
- Rear door and side-door openable for convenient checking
- Easy assembly and convenient for moving

Interior Space	30U	20U
Dimension	1600x600x600mm	1200x600x600mm

I. CEILING SPEAKER

- 6.5 inch Frameless
- Aluminum Grille

RMS Power	6W
Power Input	70V/100V
Driver Unit	6.5 inch
Max. SPL	97±2dB
Sensitivity	90±2dB
Frequency Response	110Hz – 15kHz
Installation	Spring Clip
Dimension	Ø165-170mm
Net Weight	0.6kg

J. OUTDOOR COLUMN SPEAKER (80W, 160W)

- The products have gotten waterproof certificate and other certificates and are suitable for outdoor use
- The net cover is made of aluminum and would not rot
- The speaker is the construction of dual-crossover and the frequency response is wide.

Driver Unit	8"x2, 1.4"x1	8"x4, 1.4"x1

Rated Power	80W	160W
Sensitivity (1m, 1W)	92dB	94dB
Frequency Response	80Hz-16kHz	80Hz-16kHz
Max. SPL (1m)	111dB	116dB
Dimension (LxWxH)	230x250x665mm	230x250x1320 mm
Weight	13kg	23kg

K. IP NETWORK CEILING SPEAKER

- 10/100M self-adaptation, support DHCP/static IP.
- Support standard SIP protocol.
- Support audio format: MP3, WAV, etc.
- Can play the background music, emergency paging and alarm signal from the system host.
- 6.5″ full-range unit, with magnetic circuit.
- Strong movable clamp design, durable and reliable, easy to install.

Amplifier Output	Rated Power (RMS)	10W 8Ω
	SNR	≥71dB
	Distortion	≤1%
Speaker	Speaker Unit	6.5”
	Sensitivity	92dB±2dB
	Max. SPL	100dB±2dB
	Frequency Response	200Hz-10Khz
	Distortion	≤3%
Power Supply	Voltage	PoE+(IEEE 802.3at) / DC16V 2.5A (backup)
Dimension	Dia. x H (mm)	Φ190x105mm
Weight	Net Weight (kg)	1.0kg

L. IP VOLUME CONTROLLER

- Can display the volume level and playlist of the controlled device through the LCD display screen
- 10/100M self-adaptive, support DHCP/static IP
- Can bind zone on the server interface

- Can set the time and password for screen lock
- Can control the volume of one or more devices
- Can play the songs on the server on demand
- Can push the songs on the local SD card to the specified zone for playback via Bluetooth
- Powered by PoE switch, with input voltage of +48V

Power Supply	Standard PoE power supply
Support Protocol	DHCP, UDP, ICMP, IGMP (multicast)
Network	10/100M
Bluetooth Input	BT5.0
Storage Interface	Micro SD Card
Package Dimensions	375x155x190mm
Product Dimensions	86x86x40mm
Gross Weight	0.3kg
Net weight	0.16kg

M. 16 PORT GIGABIT + OPTICAL PORTS/250W/POE SWITCH

- 16 10/100/1000Base-T RJ45 ports, 2 Gigabit SFP optical ports
- Supports remote management of the commercial cloud APP and Web
- Support intelligent start, abnormal alar and rapid troubleshooting
- Support three working modes: cloud management, VLAN isolation and standard exchange

1000 megabit RJ45 port	16
Gigabit SFP port	2
IEEE 802.3af/at PoE port	16
Maximum PoE power supply for the whole machine	250W
Maximum single port PoE power supply	30W
Input power supply	220VAC, 50Hz

Maximum power consumption of the machine	262W
Shell size	294*180*44mm
Service environment	Working temperature: 0°C~40°C Storage temperature: -40°C~70°C Working humidity: 10%~90%RH, no condensation Storage humidity: 5%~90%RH, no condensation
Cloud management function	Support rapid start Support equipment information reporting Support alarm push Support remote device configuration
Basic Network functions	Supports port aggregation, port monitoring, port isolation, and port traffic statistics Support 802.1QVLAN, MTUVLAN, port VLAN Support QoS, port out/entry speed limit, storm suppression Supports configuration of port flow control, duplex, on/off Supports DHCP snooping
MAC address capacity	8K

N. PREAMPLIFIER

- Multiple input/output ports: 5 microphone ports, 3 auxiliary ports, 2 priority ports, and 4 output ports.
- Independent volume control for each channel.
- Treble and bass tone control.
- Automatic mute (with override function).

Minimum Source Electromotive Force	MIC: ≤3.2mV±10%(1:ON); ≤50mV±10%(2:ON); ≤100mV±10%(3:ON); ≤150mV±10%(2-3:ON); Aux: ≤300mV unbalanced EMC: ≤450mV

Output Level	0dBV
Frequency Response	Line: 30Hz-20KHz(±3dB)
THD	Aux: ≤0.1%(1KHz, rated normal operating conditions)
Signal-to-Noise Ratio	Aux input: ≥66dB
Tone Adjustment Range	Bass: ±10dB(100Hz) Treble: ±10dB(10kHz)
Protection	AC fuse
Power Supply	AC 220V/50Hz
Outer Packaging Dimensions (mm)	(L×W×H) 530×440×195
Machine Dimensions (mm)	(L×W×H) 484×365×88
Gross Weight	8kg
Net Weight	6.2kg

O. POWER AMPLIFIER (1000W)

- Rack mount amplifier in 3U height
- Isolated transformer for human safety operation
- Indications for power, signal, clip, protection and temp
- Reliable protection from overheat, overload, clip and short circuit
- XLR socket and 6.35mm jack for additional mixer or amplifier link

Rated power	1000W
Rated output voltage	70V/100V/4-16 ohm
Input sensitivity	0dBv
S/N Ratio	> 85dB
Damping Factor	200:1
Input CMRR	Greater than 90dB
THD into 4Ω/1kHz	<0.3%
Frequency response	80Hz ~15kHz (±3dB)
Power requirement	AC220~240V / 50~60Hz

P. NETWORK DECODER PLAYER

- Based on TCP/IP protocol networked multifunctional front player; it works across network segments.
- Support standard SIP.

- With background broadcasting, business broadcasting, emergency broadcasting and other functions.
- Built in independent IP control module and audio input module, independent decoding can be realized.
- Support energy saving mode.
- Support audio format: MP3, WAV.
- External audio input.
- It can be controlled and played by network broadcast management software.
- 1U design, small space and light weight.

AUX Input	1.0V
Line Out	1.0V
Network Interface	RJ45(10/100M)
Supported Protocols	DHCP, UDP, ICMP, IGMP (Multicast)
Power Input	~100-240V 50Hz/60Hz
Package Size (H×W×D)	105×280×540mm
Product Size (H×W×D)	44×430×213mm
Gross Weight	3.4kg
Net Weight	2.3kg

Q. STEREO IP NETWORK AMPLIFIER (60W, 120W, 250W)

- Based on TCP/IP protocol, a network public address digital amplifier, can work across network segment.
- Support SIP2.0 (RFC3261) and related RFC, integrating group communication functions.
- Support standard SIP protocol.
- Advanced protection circuit, with output short circuit protection, overload protection and overheating protection as well as alarm function.
- Built-in high-efficiency digital amplifier, 70V/100V constant voltage output, up to 90% efficiency.

- With background broadcast, business broadcast and emergency broadcast.
- Support parameters configuration in webpage mode.
- Support audio formats: MP3, WAV, etc.
- Can be controlled via the network broadcast management software.
- With log function, can be saved to the local and server automatically.
- 1-channel AUX input, 2-channel mono-channel output, easy to extend local other audio broadcasts and local power.
- EMC OUT 24V and SC override output interfaces for speaker volume controller.
- Clear signal display, 6 status LEDs for working status.
- 1U design, anodized aluminum alloy panel, beautiful and durable

RMS (70V)	30W	60W	122.5W
RMS (100V)	60W	120W	250W
Speaker Output	70V, 100V		
Input Sensitivity	0dBV		
SNR	≥71dB		
Frequency Response	80Hz-49kHz		
THD	≤1%		
Signal Indicator	"POWER", "PRO", "CLIP", "SIG", "70V", "NET"		
Network	RJ45 (10/100M)		
EMC OUT	SC (Relay short circuit output)		
24V Out	24VDC/0.5A		
Protocols	DHCP, UDP, ICMP, IGMP (multicast)		
AC Fuse	F1AL250V	F2AL250V	F4AL250V
Power Supply	AC220V50Hz		
Package Size (HxWxD)	110x525x435mm		
Product Size (HxWxD)	44x483x313mm		
Gross Weight	7kg	7kg	7.7kg
Product Weight	5.8kg	5.8kg	6.5kg

R. 4 CHANNELS WIRELESS MICROPHONE RECEIVER

- 4 channels true diversity microphone system, connect with 4 microphones
- Adopt IR frequency pairing
- With screen to display working status, like frequency, channel, squelch and electrical level
- Built-in digital amplifier, with low distortion, low noise and large dynamic range
- With volume control for each channel
- Working distance up to 200 meters

S. HAND-HELD MICROPHONE

- Wireless

T. 8 CHANNELS OUTDOOR ANTENNA SIGNAL AMPLIFICATION

- The effective operating frequency range is 400 MHz-950 MHz, with adjustable signal gain from +2dBm to +45 dBm.
- The system is broadly compatible with most UHF wireless microphone receivers on the market.
- The antenna is equipped with a high-efficiency strong filtering circuit that effectively filters and isolates unwanted interference signals outside the operating range.

High Frequency Signal Output	2 BNC inputs
Applicable Frequency Range	400~950MHz
Input Cutoff Point	+32dBm
Amplified Signal Output	8 BNC outputs + 2 BNC backup cascade outputs (8-CH) / 16 BNC outputs (16-CH)
RF Output Gain	+1.0dB±1dB
Output/Input Gain	+1.0dB±1dB
Output isolation	>18dB at 400~1000MHz

Output/Input Impedance	50Ω
Antenna Output Connector	BNC connector
Antenna Input Connector Power Supply	+8.0V DC / 200mA
Power Supply	12~15V DC
Current Consumption	Approximately 200mA/12V DC input

U. HAND-HELD DYNAMIC MICROPHONE

- Cardioid polar pattern
- Clear tone quality, without "pop" noise for the high sound
- Solid metal structure
- Stable and reliable quality

Element	Moving coil dynamic
Polar Pattern	Uni-directional
Frequency Response	40Hz-16kHz
Sensitivity	-52dB±3dB (0dB=1V/Pa at 1KHz)
Output Impedance	600Ω30% (at 1 kHz)
Cable Length	5 meters

V. MICROPHONE STAND

- Secure lock-tight pivot knob
- Strong and durable construction
- Stand height adjustable from 910 to 1530mm
- Height and length adjustable
- Suitable for stage, theater, rehearsal, recording studio

W. 120W NETWORK COLUMN SPEAKER

- High sensitivity and high dynamic range.
- Two-way frequency design.
- Strong bass and clear treble.
- Built-in digital amplifier, with low distortion, low noise and large dynamic range.

- With self-protection function, including temperature protection and short-circuit function.
- Can play background music, emergency paging and alarm signal from the system host.
- Compliance with EN 60529 IP65 waterproof and dustproof/IEC60068-2-52 corrosion resistance

Driver Unit	6.5"x4, 1"x1
Rated Power	120W
Sensitivity (1m, 1W)	98dB±2dB
Frequency Response	150Hz-20KHz
Dimension (LxWxH)	1115x260x265mm
Gross Weight	14.8kg

X. 16 PORT GIGABIT SWITCH

- 16 10/100/1000M adaptive RJ45 ports
- All ports have line-speed forwarding capabilities
- Support port auto-flip (Auto MDI/MDIX) function
- Support switching the switch working mode by toggle switch
- Plug and play, rack-mountable

Network Standards	IEEE 802.3, IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x
Port	16 10/100/1000Mbps RJ45 ports
Indicator Light	Each port has 1 Link/Ack, Speed Indicator Light Each device has 1 Power Indicator Light
Performance	Store and forward Support 8K MAC address table depth
Usage Environment	Operating temperature: 0°C~40°C Storage temperature: -40°C~70°C Operating humidity: 10%~90%RH, non-condensing Storage humidity: 5%~90%RH, non-condensing
Input Power	100-240V~50/60Hz
Dimensions (LxWxH)	440mm x 180mm x44mm

Three-mode Switching	Standard Switching, VLAN isolation, network cloning

Y. WIRELESS CONFERENCE MICROPHONE SYSTEM

- **Digital Conference System**

Full Digital Conference System Host	• Distributed conferencing system, network protocol transmission (PCS stream) • Integrated with translation, discussion, sign in, vote, electronic nameplate • Support up to 4096 conference microphone • With 5 speech modes: FIFO, NORMAL, VOICE, Free, Apply, support up to 6 units at the same time
5G WiFi Conference (Chairman Microphone with Voting Function) Quantity: 3 units (1 unit each for Function Rooms A, B and C)	• Use 2.42 inch OLED screen, display voting results, volume, microphone status, power state and WiFi status • Built-in rechargeable lithium battery, battery capacity 10000mAh, continuous speaking for more than 8 hours • Low delay technology, minimum delay is less than 20 ms
5G WiFi Conference (Delegate Microphone with Voting Function) Quantity: 39 units (13 units each for Functions Rooms A, B and C)	• Use 2.42 inch OLED screen, display voting results, volume, microphone status, power state and WiFi status • Built-in rechargeable lithium battery, battery capacity 10000mAh, continuous speaking for more than 8 hours • Low delay technology, minimum delay is less than 20 ms
5G WiFi Wireless Router	• Adopt WPA/WPA2 digital encryption technology • Compliance with IEEE802.11ac Wave-2/A/B/g/N wireless standard • Multiple frequency point selection from UHF, 2.4GHz and 5GHz • With two RJ45 interfaces • External four-antenna design

	• Signal coverage in complex environment is radius of 25 meters, which can reach a radius of 30 meters normally • Maximum power consumption: 15W
5G WiFi Conference Microphone Charger	• Support fast charge, fast charge USB port output 9V, slow charge output 5V • Lithium battery of the microphone is 1000mAh, charge time is less than 3.5 hours • It can charge up to 10 pcs microphone at the same time • Maximum power consumption: 200W
HD Conference Camera	• 2.14 million pixels • Support H.265, H.264 network video encoding • Support full HD 1080P video output • 20x optical zoom, maximum wide angle 59.5° • Built-in 2.4G/5G dual-band WiFi

- **Video System**

Conference Interactive Flat Panel (3 units)	• 86" intelligent interactive flat panel with camera and array microphone • 48MP camera • 8 array microphones • 8 physical buttons on the front (standby, volume +/-, lock screen, touch lock, eye care, screen recording, screenshot) • Front multifunctional interface (USBx3: Android/PC sharing & Type-C & HDMI Input & Touch) • Wide voltage global standard mode • Supports various configuration customization options • Zero-bonding design improve writing experience • Original A grade panel, 4K resolution

Computer Module	• Front-mounted DP+HDMI 4K display interfaces, rear HDMI supports 4K30Hz • Hardware one-key recovery, Wake-on-LAN, scheduled power-on functionality • Supports Intel Core Series 4th generation notebook processors • Intelligent fan speed regulation • Onboard antenna enhances WIFI signal output
Mobile Trolley Stand	• Suitable for 86-inch LCD plasma screens • With load-bearing capacity range of 120kg/265lbs • Tray has load-bearing capacity range of 20kg/44lbs • Camera component has a load-bearing capacity range of 4.5kg/10lbs
Screen Sharing Device	• One-click effortless screen sharing, seamless multi-platform switching • Interoperability, touch feedback • Full platform coverage, seamless access • Transmission security to prevent leakage
8 Channel Digital Modular Seamless Matrix Switcher	• Support 8-channel signal inputs and outputs • Intelligent matrix system for audio and video signal switching, compatible with different audio signal input/output signal cards
HDMI Digital Input and Output Cards	• 4 Channels HDMI Digital Input Card • 4 Channels HDMI Digital Output Card

- **Audio System**

Wireless Microphone System (2 hand-held mic)	• 2 channels microphone system, connect with 2 microphones • PLL digital automatic communication function • Adopt IR frequency pairing

		• With screen to display working status, like frequency, channel, squelch and electrical level • With volume control for each channel
	Network Decoder Player	• Based on TCP/IP protocol networked multifunctional front player; it works across network segments. • Support standard SIP. • With background broadcasting, business broadcasting, emergency broadcasting and other functions. • Built in independent IP control module and audio input module, independent decoding can be realized. • Support energy saving mode. • Support audio format: MP3, WAV. • External audio input. • It can be controlled and played by network broadcast management software. • 1U design, small space and light weight.
	Mixing Console	• Support 12 channels XLR mono inputs and 4 channels stereo input • Each channel with 3 bands EQ adjustment, mute switch, PFL earphone switch • Support 1 channel feedback and 1 monitoring output • LED screen for status display
	Automatic Feedback Suppressor	• 2 channels auto feedback suppressor • Built-in high-end high-speed floating point digital signal processor and adaptive feedback notch processing algorithm technology • XLR and RCA interfaces for audio inputs and outputs
	4x8 Professional Audio Processor	• 24-bit/48kHz sampling frequency, high performance AD/DA converters, and a 40-bit floating-point DSP processor • Hi-precision input sensitivity adjustment with 21 levels, 3dB