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भारत सरकार

परमाणु उर्जा विभाग

भारी पानी बोर्ड

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
HEAVY WATER BOARD

विक्रम साराभाई भवन,
अणुशक्तिनगर,
मुंबई - 400 094

Vikram Sarabhai Bhavan,
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Ref No. HWB/OPERN/PASYSTEM/2022/01

Dt. 29/06/2022

Sub: Supply, Installation, Testing & Commissioning of Public Address system at 0th floor hall, V S Bhavan (HWB).

We are in need of a High quality Public Address (PA) System for our multipurpose hall of seating capacity of 80-100 employees. The PA System shall have facility of connecting multiple input/output devices such as microphones, laptops, smart phones/tablets/speakers. We need such system along with its installation, testing, commissioning and after sale support.

On behalf of the President of India, we hereby invite sealed quotations for Supply, Installation, Testing & Commissioning of Public Address system at 0th floor hall, V S Bhavan (HWB). Detailed list and quantity of the equipment covered under Supply, Installation, Testing & commissioning of Public Address system is given in Annexure-I.

While detail scope of work and other highlights/requirements of this contract are as follows:

Scope of Work:

1. Supply, Installation, Testing & commissioning of Public Address System at zero floor hall, V. S. Bhavan (HWB) with warranty of one year for the complete supplied system. The system consists of following components.
 - a) Sound Mixer console (Analog 12 channel) Yamaha MG12XU or equivalent (Qty-1 Nos)
 - b) Active Speakers (Pope/ Yamaha DBR12/JBL12") 400W plus RMS- (Qty-4 Nos)
 - c) Handheld Wired Dynamic Microphone with cable (Shure SM58 or equivalent- (Qty-2 Nos))
 - d) Dynamic Wireless Microphone SM58 with receiver (Shure SLX24R or equivalent (Qty-2 Nos))
 - e) Mic stands small-(Qty-2 Nos)
 - f) Mic stands standard size (Qty-2 Nos)
 - g) Heavy Duty Notation stand (Qty-1 Nos) (Shall be able to take load of laptop)

- h) Tripod stands for speakers for point no b) (Qty2 Nos)
 - i) Wall mount stand for speakers for point no b) (Qty-2 Nos)
 - j) Bulk audio cables(91m) & patch chords for interconnection of speakers & Mixer(Lot)
 - k) Bulk connectors (neutrik make) (Lot)
2. Detailed list and quantity of the equipment covered under Supply, Installation, Testing & commissioning of Public Address system is given in Annexure-I.
 3. Vendor shall Supply the Material as per the Annexure-I and Technical specifications mentioned in Annexure-II;
 4. Vendor shall install the system by interconnecting the all system components.
 5. After installing the system testing & commissioning also will be in the supplier's scope.
 6. Vendor shall give free of cost service during the warranty period.
 7. After successful commissioning of the system; Demo shall be given by the vendor to HWB officials.
 8. System shall have one year of warranty for total supplied items linked to system and warranty period shall start after successfully installation and commissioning of the system at site.
 9. Period of Contract: The contract shall be for a period of 45days from the date of placement of work order.
 10. The system shall be delivered and installed to HWBs office at following address
Heavy water Board
0th Floor, Multipurpose Hall,
Vikram Sarabhai Bhavan,
Anushakti Nagar, Mumbai 400094
 11. **Evaluation Criteria-** Participating bidders shall be from Mumbai/Navi Mumbai. Bidders need to comply with all the scope of work and terms & conditions mentioned in the tender. The bids not complying with the Technical Specification and all the Terms and Conditions of a tender will be treated as non-responsive and will be rejected. Technically qualified lowest bid will be finalized on overall cost of the system.
 12. **Terms of Payment-** Full and Final Payment will be done on successful completion installation & commissioning of the complete system and on submission / verification of the following documents to the coordinating section:
 - a. Invoice in duplicate duly certified by HWB's Engineer-in-charge
 - b. Advanced Stamped Receipt from the vendor.
 - c. Duly signed Warranty (one year from date of commissioning) certificate of the system.
 - d. Bank Detail for RTGS / NEFT Payment.
 - e. GST Registration details.

Other than charges mentioned in the Price Schedule, No Extra Payment in any other Form will be paid to party for completing the job.

Note: Taxes as applicable will be deducted.

13. All works will be executed in consultation with and under supervision of Engineer – in – charge.
14. Bidder shall not outsource any job to a third party / another integrator without HWB's permission in writing.
15. Bidder shall also depute their personnel to HWB, if required for restoration / repair of complete system component, without any extra cost of HWB during warranty period.
16. CPWD contract procedure, its terms & conditions Contract shall be applicable during the tenure / validity for this work contract. The same is available on <http://cpwd.gov.in/Publication/GCC14.pdf>.

Your offer should include following information/ details

1. The quotation shall be as per Annexure-VI and shall clearly indicate the quoted unit rate and applicable taxes and duties.
2. You are requested to submit the copy of authorized dealer/Supplier/service provider from OEM for the items supplied.
3. List of reputed customers/clients along with previous PO/WO copy for the system supplied by you for them, may be submitted to us.
4. You are requested to submit a copy of PAN & GST registration certificate.
5. Bidders to sign and submit the "Declaration" accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for the time specified in the tender documents. Offer received without "Declaration" shall be considered invalid.
6. Earnest Money for Rs.6920 (Rupees Six Thousand Nine Hundred Twenty Only) in the form of Treasury Challan or Demand Draft or Pay order or Banker's Cheque or Deposit at Call Receipt or Fixed Deposit Receipt drawn in favour of Pay and Accounts Officer, Heavy Water Board, Mumbai EMD should be deposited either in the office of GM (Technical), HWB along with bid. The Bank Guarantee submitted as a part of Earnest Money shall be valid for a period of 90 days from the last date of submission of the tender. The earnest money given by all the bidders except the lowest bidder should be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. The forfeiture of earnest money shall be done as per the General Conditions of Contract of CPWD manual.
7. The offer received shall be considered invalid if:
 - a. The Bidder withdraws his bid during the bid validity period; or
 - b. The Bidder makes any statement or encloses any form which turns out to be false, incorrect and/or misleading at any time prior to signing of contract and/or conceals or suppresses material information; or
 - c. Bid without EMD
 - d. The successful Bidder fails to sign the contract or furnish performance guarantee and other guarantee(s)/security in the form and manner to the satisfaction of Heavy Water Board, as mentioned in the Bid Documents.

Any decision in this regard by Heavy Water Board shall be final, conclusive and binding on the Bidder

8. **Performance Bank Guarantee (PBG):** The successful Bidder(s) will be required to deposit a performance bank guarantee for an amount equal to 3% of tendered and accepted value of WO in the form of Departments receipt/Demand draft/ bankers cheque/ Deposit at call receipt/ Fixed deposit receipt (FDR), Issued by a scheduled Bank, drawn in favour of Pay &

Accounts Officer, Heavy Water Board. The PBG shall be valid for entire validity period of work order with a claim period of six months. The submission of PBG shall be within 7 days of issue of letter of acceptance. This period can be further extended at the written request of the contractor by the Engineer-in-charge for a maximum period of 7 more days with late fee @0.1% per day, of performance guarantee amount.


9. Security Deposit (SD): Security Deposit @ 2.5% of full and final Bill amount shall also be recovered and shall be retained with HWB for six months from the date of completion of work Order. Six month period shall be considered as defect liability period and such SD amount shall be returned back after successful completion of the defect liability period.
10. The statutory deduction on account of income tax, TDS on GST and other taxes & levies shall be deducted from bill of the contractor.

You are requested to submit your Price Bid, to the undersigned in a sealed cover super scribed with the Name of the Work on or before **16:00 hrs. of 29/07/2022** at HWB's office at above shown address. Such Price Bids will be opened at **16:30 hrs.** on the same day in presence of all the Bidders or their authorized representatives whoever so desire to be present. As it is not possible to write down entire terms & conditions of contract here, only the key conditions have been given. We being a Central Govt. Organization, general CPWD guide lines, as in vogue, shall be applicable to both HWB & your organization.

Undersigned reserves the right to accept or reject any or all the Bids without assigning any reasons;

Thanking you

Yours faithfully


(S Satyakumar) 29/6

GM (Technical), HWB

Annexure-I: Schedule of Quantity

Tender No.: HWB/OPRN/PASYSTEM/2021/01

Annexure-I: Schedule of Quantity

Supply, Installation, Testing & commissioning of Public Address system at 0th floor hall, V S Bhavan (HWB).

| Sr.No. | Item description | Quantity | Unit |
|--------|---|----------|-------|
| 1 | Supply & installation of Sound Mixer console (Analog 12 channel) Yamaha MG16XU or equivalent. | 01 | No |
| 2 | Supply & installation of Active Speakers (Pope/ Yamaha DBR12/JBL12") 400W plus RMS | 04 | Nos. |
| 3 | Supply & installation of Handheld Wired Dynamic Microphone with cable shure SM58 or equivalent | 02 | Nos. |
| 4 | Supply & installation of Dynamic Wireless Microphone SM58 with receiver shure SLX24R or equivalent | 02 | Sets. |
| 5 | Supply & installation of Mic stands small | 02 | Nos. |
| 6 | Supply & installation of Mic stands standard size | 02 | Nos. |
| 7 | Supply & installation of Notation stand | 01 | Nos. |
| 8 | Supply & installation of Tripod stands for speakers for point no 2 | 02 | Nos. |
| 9 | Supply & installation of Wall mount stand for speakers for point no 2 | 02 | Nos. |
| 10 | Supply & installation of Bulk audio cables(91 mtrs) & patch chords for interconnection of speakers & Mixer. | 01 | Lot |
| 11 | Supply & installation of Bulk connectors (neutrik make) | 01 | Lot |

TENDER NO: HWB/OPERN/PASYSTEM/2021/01

Technical Specifications for

**“Supply, Installation, Testing & commissioning
of Public Address system at 0th floor Hall V S
Bhavan (HWB)”**

1. Analog Audio Mixer Console with cover:

| | | | |
|-----------------------------------|--|---|---|
| Input Channels | 12 Nos (Mono/Stereo – Mic/Line Type) | | |
| Output channels | Stereo Out: 2, AUX send: 2, Group Out: 2, Phones: 1, Monitor Out :2. | | |
| Input Channel Function | PAD | CH 1 – CH 4 | 26 dB |
| | HPF | CH 1 – CH 4, CH 5/6 (MIC), CH 7/8 (MIC) | 80 Hz, 12 dB/oct |
| | COMP | CH 1 – CH 4 | 1 knob compressor (Gain/Threshold/Ratio) Threshold: +22 dBu to -8 dBu, Ratio: 1:1 to 4:1, Output level: 0 dB to 7 dB, Attack time: approx. 25 msec, Release time: approx. 300 msec |
| | EQ | CH 1 – CH 7/8 | HIGH: Gain: +15 dB/-15 dB, Frequency: 10 kHz shelving MID: Gain: +15 dB/-15 dB, Frequency: 2.5 kHz peaking LOW: Gain: +15 dB/-15 dB, Frequency: 100 Hz shelving |
| | | CH 9/10, CH 11/12 | HIGH: Gain: +15 dB/-15 dB, Frequency: 10 kHz shelving LOW: Gain: +15 dB/-15 dB, Frequency: 100 Hz shelving |
| PEAK LED | CH 1 – CH 7/8 | LED turns on when post EQ signal reaches 3 dB below clipping level. | |
| Built in Effects | SPX Algorithm - 24 programs, PARAMETER control: 1, FOOT SW: 1 (FX RTN CH on/off) | | |
| USB Audio | 2 IN/2 OUT - USB Audio Class 2.0 compliant, Sampling Frequency: Max 192 kHz, Bit Depth: 24-bit | | |
| Phantom Power Supply | +48V DC | | |
| Power Requirement | 100-240 V AC, 50 Hz | | |
| Level Meter | Pre Monitor Level- 2 x 12 -segment LED meter [PEAK, +10, +6, +3, 0, -3, -6, -10, -15, -20, -25, -30 dB] | | |
| Frequency response | Input to stereo out +0.5 dB/-1.5 dB (20 Hz to 48 kHz), refer to the nominal output level @ 1 kHz, GAIN knob: Min | | |
| Total harmonic Distortion (THD+N) | Input to stereo out 0.03 % @ +14 dBu (20 Hz to 20 kHz), GAIN knob: Min 0.005 % @ +24 dBu (1 kHz), GAIN knob: Min | | |
| Hum & Noise *1 (20 Hz to 20 kHz) | Equivalent Input Noise | -128 dBu (Mono Input Channel, Rs: 150 Ω, GAIN knob: Max) | |
| | Residual Output Noise | -102 dBu (STEREO OUT, STEREO master fader: Min) | |
| Crosstalk (1 KHz) | -78dB | | |
| Operating Temperature | 0-40 Deg C | | |
| Accessories | AC Power cord, Mounting kit, Owner's manual, tech specs leaflet, console cover | | |
| External Connectivity | Bluetooth preferable, MP3, MP3 recording | | |
| Warranty | 1 year | | |

| Analog Inputs Characteristics | Input Jack | PAD 26 dB | GAIN Trim Position | Actual Load Impedance | For Use with Nominal | Input Level | | | Connector | |
|-------------------------------|---------------|-----------|--------------------|-----------------------|----------------------|--------------------|--------------------|---------------------------------|-----------------------|-------------------------|
| | | | | | | Sensitivity *1 | Nominal | Max. Before Clip | | |
| MIC/LINE 1 - 4 | OFF | — | +64 dB | 3 kΩ | 50–600 Ω Mics/Lines | -80 dBu (0.077 mV) | -60 dBu (0.775 mV) | -40 dBu (7.75 mV) | Combo jack (Balanced) | |
| | | | +20 dB | | | -36 dBu (12.3 mV) | -16 dBu (122.8 mV) | +4 dBu (1.228 V) | | |
| | | | ON | | | +38 dB | -54 dBu (1.55 mV) | -34 dBu (15.46 mV) | | -14 dBu (154.6 mV) |
| | | | | | | -6 dB | -10 dBu (245 mV) | +10 dBu (2.451 V) | | +30 dBu (24.51 V) |
| | MIC 5/6, 7/8 | — | +64 dB | 3 kΩ | 50–600 Ω Mics | -80 dBu (0.077 mV) | -60 dBu (0.775 mV) | -40 dBu (7.75 mV) | | XLR-3-31 *3 (Balanced) |
| | | | +20 dB | | | -36 dBu (12.3 mV) | -16 dBu (122.8 mV) | -6 dBu (388.2 mV) | | |
| | LINE 5/6, 7/8 | — | +38 dB | 10 kΩ | 600 Ω Lines | -54 dBu (1.55 mV) | -34 dBu (15.46 mV) | -14 dBu (154.6 mV) | | Phone jack (Unbalanced) |
| | | | -6 dB | | | -10 dBu (245 mV) | +10 dBu (2.451 V) | +30 dBu (24.51 V) | | |
| LINE 9/10, 11/12 | — | — | 10 kΩ | 600 Ω Lines | -30 dBu (24.5 mV) | -10 dBu (245 mV) | +10 dBu (2.45 V) | Phone jack RCA pin (Unbalanced) | | |

*1 Sensitivity is the lowest level that will produce an output of +4 dBu (1.228 V) or the nominal output level when the unit is set to maximum gain. (All level controls are at their maximum position.)
*2 1&Sleeve = GND, 2&Tip = HOT, 3&Ring = COLD
*3 1 = GND, 2 = HOT, 3 = COLD
*4 Tip = Signal, Sleeve = GND

| Analog Output Characteristics | Output Terminal | Actual Source Impedance | For Use with Nominal | Output Level | | Connector |
|---|-----------------|-------------------------|----------------------|-------------------|---|-----------|
| | | | | Nominal | Max. Before Clip | |
| STEREO OUT [L, R] | 75 Ω | 600 Ω Lines | +4 dBu (1.228 V) | +24 dBu (12.28 V) | XLR-3-32 *3 Phone jack *5 (Balanced) | |
| MONITOR OUT [L, R] GROUP OUT [1, 2] AUX SEND [1, 2] | 150 Ω | 10 kΩ Lines | +4 dBu (1.228 V) | +20 dBu (7.750 V) | Phone jack *5 (Impedance Balance) | |
| PHONES | 110 Ω | 40 Ω Phones | 3 mW + 3 mW | 100 mW + 100 mW | Stereo phone jack | |

*3 1 = GND, 2 = HOT, 3 = COLD
*5 Tip = HOT, Ring = COLD, Sleeve = GND

2. Two way Active speaker with built in bi-amplifier

| | |
|--------------------------------|---------------------------------------|
| Class & Dia | Two way Active Speaker, Min. 12" Dia |
| Frequency Response | 40Hz - 20kHz |
| Horizontal Coverage Angle | 90° |
| Vertical Coverage Angle | 60° |
| SPL ** | 120dB |
| Amplifier | |
| Total Power | 800W Peak, 400W RMS Continuous |
| Power | AC 110 @ 60Hz / 240V @ 50Hz |
| Transducer section | |
| High Frequency | 1.35" Compression Driver |
| Transducer Voice Coil Diameter | 25 mm (1") |
| Magnet Material | Ferrite |
| Diaphragm Material | Titanium |
| Low Frequency | 1*15" (381 mm) Diameter Transducer |
| Voice Coil Diameter | 76 mm (3") |
| Magnet Material | Ferrite |
| Enclosure | |
| Box Construction | Weather Proof ABS Cabinet |
| Finish | Black |
| Accessories | Tripod stand suitable for the speaker |

3. Handheld Wired Dynamic Microphone with cable shure SM58 or equivalent

| | |
|--|--|
| Type | Dynamic (moving coil) |
| Application | Professional Audio |
| Frequency Response | 50 to 15,000 Hz |
| Polar Pattern | Cardioid |
| Output Impedance | 300 Ω |
| Sensitivity at 1 kHz, open circuit voltage | -56.0 dBV/Pa (1.6 mV) Pa=94 dB SPL |
| Polarity | Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3 |
| Connector | Three-pin professional audio (XLR) , male |
| Housing | Dark gray, enamel-painted, die cast metal; matte-finished, silver colored, spherical steel mesh grille |
| Accessories | Carrying storage bag |
| Cable | 25 foot (7.5m) Triple-Flex [®] Microphone XLR Cable with Switchcraft connectors |

4. Wireless dynamic Microphone (Shure SM58) with receiver (shure SLX24R) or equivalent

| Wireless Dynamic Microphone characteristics | |
|--|--|
| Microphone Technology | Dynamic |
| Sensitivity | -54.5 dBV/Pascal |
| Impedance | 300 Ohm |
| Frequency Response | 50 to 15,000 Hz |
| Total Harmonic Distortion (THD) | 0.02 % |
| Audio Input Details | Cardioid (uni-directional) - 50 - 15000 Hz |
| Modulation Type | FM |
| Color Category | black |
| Accessories | Carrying case, microphone clip, transmitter unit |
| Receiver Unit specifications | |
| RF Carrier Frequency Range | 518-752 MHz (available frequencies depend on applicable country regulations) |
| Working Range | 100 m (300 ft) |
| Audio Frequency Response | 45 Hz-15 kHz, ± 2 dB |
| System Distortion (ref. ± 38 kHz deviation, 1 kHz tone) | 0.5% THD typical |
| Dynamic Range | >100 dB A-weighted |
| Operating Temperature Range | -18°C (0°F) to +50°C (+122°F) |
| Housing | Galvanized steel |
| Audio Output Level (ref. ± 38 kHz deviation, 1 kHz tone) | XLR connector (into 600 ohm load): -13 dBV 1/4 inch connector (into 3000 ohm load): |

| | |
|----------------------------|--|
| | -2 dBV |
| Output Impedance | XLR connector: 200 ohms 1/4 inch connector: 1kohm |
| RF Sensitivity | -105 dBm for 12 dB SINAD (typical) |
| Image Rejection | >70 dB |
| Typical Power Requirements | 12-18 Vdc at 150 mA; external AC adapter to be supplied. |
| Accessories | Carrying case, Mounting accessories etc |

5. Microphone stand standard Size, small Size & Notation Stand

- Light weight boom stand with Tripod or stable base.
- Ideal for live & studio settings
- Roadworthy steel construction
- Sleek black finish
- Mic clip included
- Rotation with 360 Deg
- Notation stand shall suit for orchestral requirement.

Annexure-VI: Schedule of Quantity & Rates

| Tender No.: HWB/OPRN/PASYSTEM/2021/01 | | | | | | | |
|---|--|----------|-------|-----------|----------|--------------------|-------|
| Annexure-VI: Schedule of Quantity and Rates | | | | | | | |
| Name of The Bidder | | | | | | | |
| Supply, Installation, Testing & commissioning of Public Address system at 0 th floor hall, V S Bhavan (HWB). | | | | | | | |
| Sr. No | Item description | Quantity | Unit | Unit Rate | GST in % | Unit Rate with GST | Total |
| 1 | Supply & installation of Sound Mixer console (Analog 12 channel) Yamaha MG16XU or equivalent. | 01 | No | | | | |
| 2 | Supply & installation of Active Speakers (Pope/ Yamaha DBR12/JBL12") 400W plus RMS | 04 | Nos. | | | | |
| 3 | Supply & installation of Handheld Wired Dynamic Microphone with cable shure SM58 or equivalent | 02 | Nos. | | | | |
| 4 | Supply & installation of Dynamic Wireless Microphone SM58 with receiver shure SLX24R or equivalent | 02 | Sets. | | | | |
| 5 | Supply & installation of Mic stands small | 02 | Nos. | | | | |
| 6 | Supply & installation of Mic stands standard size | 02 | Nos. | | | | |
| 7 | Supply & installation of Notation stand | 01 | Nos. | | | | |
| 8 | Supply & installation of Tripod stands for speakers for point no 2 | 02 | Nos. | | | | |
| 9 | Supply & installation of Wall mount stand for speakers for point no 2 | 02 | Nos. | | | | |
| 10 | Supply & installation of Bulk audio cables (90 mtrs) & patch chords for interconnection of speakers & Mixer. | 90 | Lot | | | | |
| 11 | Supply & installation of Bulk connectors (neutrik make) | 01 | Lot | | | | |
| Total | | | | | | | |