File No. PIRack/BINDScheme/9(4)2025-D(TD/FM)

सत्यमेव जयते

आकाशवाणी

प्रसार भारती/PRASAR BHARATI

भारत का लोक सेवा प्रसारक /India's Public Service Broadcaster

योजना एवं विकास एकक / Planning & Development Unit

आकाशवाणी भवन, संसद मार्ग /Akashvani Bhavan, Parliament Street

नई दिल्ली/New Delhi-110001

File No. PIRack/BINDScheme/9(4)2025-D(TD/FM) Dated:11.08.2025

Subject: Extension of date for submission of Vendors/ OEMs feedback and budgetary quote regarding draft Technical Specification for Supply of Stereo & Digital Programme Input cum Monitoring Rack

In reference to above cited subject, the date for submission of feedback and budgetary quote regarding draft Technical Specification for Supply of Stereo & Digital Programme Input cum Monitoring Rack is being extended.

The Vendors/OEMs dealing with supply of such equipment may submit their reply by E-mail to "Ravindra Goyal" <ravindragoyal@prasarbharati.gov.in>,"JSKatara"<jskatara@prasarbharati.gov.in>"ashok pant"<ashokpant@prasarbharati.gov.in>,"Kamakhya Narayan Pandey" <knpandey@prasarbharati.gov.in> " on or before 18.08.2025

Encl.: A/A

11.08.2025

(K N Pandey)
(Assistant Director(TD/FM))
For Director General

PRASAR BHARATI
(India's Public service Broadcaster)
DIRECTORATE GENERAL: ALL INDIA RADIO
(PLANNING & DEVELOPMENT UNIT)
*****

File No. **PIRack/BINDScheme/9(4)2025-D(TD/FM)**

SPECIFICATION FOR SUPPLY OF STEREO & DIGITAL PROGRAMME INPUT CUM MONITORING RACK

SUMMARY:

A. ESSENTIAL REQUIREMENTS OF TENDER:

1. (i) The tenderer should submit Schedule of Requirements/Materials of Supply **without *price* *in the same format as given in Section-4.0 (A&B)*** of All India Radio Specifications in the technical bid, failing which the tender shall be considered incomplete and is liable to be rejected.
   (ii) It is also mandatory to mention ***Make & Model of the offered equipment*** in the Schedule of Requirements/Materials of Supply, failing which the tender shall be considered incomplete and is liable to be rejected.
2. Each statement of this specification has to be complied with & supported by printed technical literature, technical data sheets, schematic drawings and technical manuals from the manufacturer/assembler of the equipment by the tenderer, to assess the merit of the offer without which the tender will be considered incomplete and is liable to be rejected.
3. All the technical literature, technical data sheets, schematic drawings and Technical Manuals to be submitted by the tenderer must be signed & stamped on each and every page by the respective Original Equipment Manufacturer (OEM)/ Original Equipment Assembler (OEA) and countersigned by the tenderer, without which the tender will be considered incomplete and is liable to be rejected.
4. The tenderer should submit the tender offer to All India Radio in the format given below, section wise & clause wise, in respect of all the sections of technical specifications. The tenderer must provide the page number reference, in column (4) of the table given below, of the Technical bid clearly indicating the volume number also, if any, for each supporting document to verify the parametric values shown in the technical specifications compliance statement, to assess the full merit of the offer, failing which tender shall be considered incomplete and is liable to be rejected.

S. No. of AIR Specifications	Details of All India Radio	Compliance **(Yes/No)**	The page No. of the tender offer, where the	Remarks

(Section wise & Clause wise) (1)	Specifications (Part/Section wise & Clause wise) (2)	(3)	information/ supporting document is available. (4)	(5)
Section-1.0 Clause wise				
Section-2.0 Clause wise				
Section-3.0 Clause wise				
Section-4.0 (A&B) Clause wise				

1. The tenderer should quote the rate/cost of individual items in the tender offer while submitting the tender offer for spares **(OPTIONAL)** in commercial bid. ***Optional items will not be considered for ranking purpose.***

2. The complete technical specifications (Section wise & Clause wise) compliance statements along with Schedule of Requirements/Materials (un-priced) must be signed & stamped by the respective Original Equipment Manufacturer (OEM) in the tender document, failing which the tender shall be considered incomplete and is liable to be rejected.
   In case tender offer is from other than the Original Equipment Manufacturer, the tenderer must also sign & stamp the complete Technical specifications (Section wise & Clause wise) compliance statements, failing which the tender shall be considered incomplete and is liable to be rejected. The OEM & tenderer should mention their name & designation of the signatories with full address, phone number, e-mail addresses etc.
3. The authorization and guarantee must be given by respective Original Equipment Manufacturer (OEM) on their letter head pad duly signed & stamped. In case tender offer is from other than the Original Equipment Manufacturer, the tenderer must also give guarantee on their letter head pad duly signed & stamped, failing which the tender shall be considered incomplete and is liable to be rejected. Guarantee shall be as per the format given in AIR specification. Guarantee for the commercially available off-the-shelf (**COTS**) products shall also be given by tenderer/OEM of the system.
4. In case tender offer is from other than the Original Equipment Manufacturer, the tenderer should also furnish a certificate from the OEM that the tenderer can quote items of the OEM directly, failing which the tender shall be considered incomplete and is liable to be rejected without any notice/back reference.
5. Any change in the AIR technical specifications format or language or in parameters or of any other nature including the deletion/addition of technical specifications clause, words, lines in the technical specifications compliance statement by the OEM/ tenderer will not be acceptable to AIR and the tender is liable to be rejected.

6. Prasar Bharati will follow the reciprocal market access strategy of the Government of India, which describes on the Clause 10(d) of Public Procurement Preference to Make in India, Order 2017. The Purchaser shall have right for not to consider any Bid and may restrict such Bidders from the bidding process; who originate from those countries, where they do not allow market access for Indian companies; in such cases, the Clause 10 (d) of Public Procurement Preference to Make in India, order 2017, shall be invoked wherever applicable, when it is relevant

B. ESSENTIAL ELIGIBILITY CRITERIA FOR THE TENDERS:

(a) The tenderer shall be from India only.

(b) The tenderer should either be the OEM of Stereo & Digital Programme Input-Cum-Monitoring Rack or their authorized representative/dealer in India.

(c) In case the tenderer is the authorized representative/dealer, the tenderer must be an authorized representative/dealer of any OEM of Stereo & Digital Programme Input-Cum-Monitoring Rack for last **three years or more OR** must be in the business of sales and supply Stereo & Digital Programme Input-Cum-Monitoring Rack for last **three years or more**. Documentary evidence to support this must be provided.

(d) (i) The OEM of the Stereo & Digital Programme Input-Cum-Monitoring Rack must have an experience of manufacturing and supplying Stereo & Digital Programme Input-Cum-Monitoring Rack. Documentary evidence to support this must be provided.

(ii) The OEM should have supplied Stereo & Digital Programme Input-Cum-Monitoring Rack to reputed/public broadcasters. The OEM must provide the details of past supply record (**in the format given below)** for at least 40 Nos. of such Stereo & Digital Programme Input-Cum-Monitoring Rack, supplied during last 10 years ending last day of the month previous to the one in which the tender is invited. Documentary evidence to support this must be provided.

Supply order No. with date	Detail of PI Rack supplied	Qty. supplied	Name of the broadcaster with full postal address including e-mail address to whom transmitter was supplied.	Remarks
(1)		(2)	(3)	(4)

(iii) All India Radio reserves the right to get performance feedback of the equipment from any of the above broadcasters named by the tenderer/OEM. The equipment should be field proven, if required Akashvani may call for demo and performance measurement of the offered equipment.

(iv) Copies of supply order/Completion certificates/delivery challans/invoice of at least 30 Nos., out of the 40 Nos. of Stereo & Digital Programme Input-Cum-Monitoring Rack submitted by the tenderer in above format, are also to be enclosed by the tenderer.

(e) The OEM of the offered Stereo & Digital Programme Input-Cum-Monitoring Rack must have his local office/authorized representative/dealer in India for after sales support. **A certificate as per Annexure-III** duly signed by the OEM as well as local office/authorized representative/dealer must be submitted with the offer. Copy of Agreement/MoU executed between OEMs and their authorized representative/dealer duly signed by both must also be submitted with the offer.

SECTION - 1.0

GENERAL SPECIFICATIONS:

1.0 Stereo & Digital Programme Input-Cum-Monitoring Rack as per AIR specification shall be used round the clock for continuous operation without any interruption in VHF FM broadcast service at AIR station.

1.1 Please refer tender documents for general terms and conditions of contract for supply including all the commercial aspects like; Packing and packing list, Insurance and Marine Risk etc. Payment terms, Penalty/Compensation for delay, Damages and liabilities, Time Period and Extension for Delay, Foreclosure of contract due to Abandonment or Reduction in scope of supply, Cancellation of contract in full or part, Recovery of security deposit, Performance Guarantee, Unsatisfactory workmanship, Damages incurred during transit, tenderer liable for damages, Defects, Recovery of compensation, Ensuring payment and amenities, tenderer to indemnify Government against Patent Rights, Release of security deposit, Safety Code, insurance from manufacturer's works/factory to respective site etc. **i.e. in totality**.

1.2 INSPECTION:

a. Detailed inspection of Stereo & Digital Programme Input-Cum-Monitoring Rack will be carried out at OEM Place by Engineers of All India Radio as per details given in Section-3.0.
b. Prior intimation for carrying out inspection at OEM/OEA's works is to be given by the tenderer to All India Radio at least **2 weeks** in advance alongwith all the testing/measurements of Stereo & Digital Programme Input-Cum-Monitoring Rack as per parameters in Section-3.0 as per approved ATP.
c. For AIR inspecting engineers, boarding, lodging etc. will be borne by All India Radio (if required).
d. The complete Acceptance Test Procedure/Protocol (ATP) will be prepared by the OEM/OEA and submitted to the concerned Zonal office for approval **within one month** of issue of Acceptance of Tender. ATP will also indicate full details of setup for measuring/testing equipments to be deployed during the performance measurements/inspection. The **approved ATP** shall form the basis for performance measurements/inspection to be carried out.

1.3 INFORMATION TO BE SUPPLIED WITH THE TENDER:

The complete technical specifications (Section wise & Clause wise) compliance statement alongwith Schedule of Requirements/Materials (un-priced) duly signed & stamped on each page by the respective Original Equipment Manufacturer (OEM)/ Original Equipment Manufacturer (OEA) and countersigned by the tenderer as per the format given above in clause A (4).

(i) Complete printed technical literature/technical data sheet/schematic drawings/detailed information including Technical Manual of Stereo & Digital Programme Input-Cum-Monitoring Rack as per Section-4.0 (A&B), duly signed & stamped by the respective Original Equipment Manufacturer of the offered equipment & countersigned by the tenderer in support of compliance statement should be furnished, to assess the full merit of the offer, without hich the tender offer will be considered incomplete and is liable for rejection. w the supply of Stereo & Digital Programme Input-Cum-Monitoring Rack should be in conformit

(ii) Detailed Schedule of Requirements/Materials (un-priced) for y with Section-4.0 (A&B) without any change in the format, failing which, the tender will be considered incomplete and is liable for rejection. The tenderer must quote all items.

(iii) Descriptive information and complete details of each equipment offered shall be given by the tenderer.

(iv) Country of Origin, Make, Type & Model of all the offered items should be mentioned including the name & address of their vendors.

(vi) The performance figures of the offered equipment/items must be given by the tenderer, to assess the merit of the offer without which the tender will be considered incomplete and is liable to be rejected.

1.4 INFORMATION TO BE SUPPLIED BY THE TENDERER WITHIN ONE MONTH AFTER ISSUE OF ACCEPTANCE OF TENDER:

One set of Technical Manuals (for Installation, Testing, Commissioning, Operation & Maintenance, including theory of operation and fault diagnosis) **COLOUR** printed and duly bound for Stereo & Digital Programme Input-Cum-Monitoring Rack alongwith soft copy on CD must be supplied to concerned Zonal Office.

1.5 INFORMATION TO PRECEDE DISPATCH OF EQUIPMENT:

Following information should be supplied to the concerned Zonal Office and each of the consignee, two months prior to dispatch of Equipment:

a) Detailed list of equipment under dispatch.

b) Photograph showing location of various units/sub units with item numbers marked thereon.

1.6 INFORMATION TO BE SUPPLIED ALONGWITH EQUIPMENT:

Technical manuals (for Installation, Testing, Commissioning, Operation & Maintenance, including theory of operation and fault diagnosis) **COLOUR** printed and duly bound for Stereo & Digital Programme Input-Cum-Monitoring Rack and OEM/OEA test certificate with soft copy on CD shall be supplied as per Section-4.0 (A&B).

1.7 GUARANTEE:

The tenderer shall submit with his tender an undertaking to accept the following guarantees:

(i) The guarantee of the Equipments/items shall be 36 months from the date of receipt of Equipments/items by consignee in good condition.

(ii) A guarantee that the equipment supplied will be in accordance with these specifications, varied only to the extent stated in his tender and agreed to in the contract.

(iii) A guarantee to make good within 10 days at tenderer's expense, if any component which becomes defective under normal operating conditions during guarantee period.

(iv) A guarantee to supply all components for a period of ten years from the date of acceptance of Equipments/items, at rates at which these are being supplied by him to other customers and also should match prices of original manufactures of these components prevailing at that time.

(v) If at any stage during next 10 years, the manufacturer stops production of this model of Equipments/items, the tenderer/OEM shall intimate All India Radio in advance to enable the latter to stock the critical items.

1.8 LANGUAGE/UNITS:

All information supplied by the tenderer & all markings, notes, designation on the drawings & associated write-ups shall be in "**English language"** only.

All dimensions, units on drawings, all references to weights, measures & quantities shall be in SI Units.

1.9 DELIVERY OF EQUIPMENT:

Ten (10) months from the date of issue of Acceptance of Tender.

1.10 PACKING AND PACKING LISTS:

All the equipment should be securely and properly packed to withstand transit hazards. Equipment packing shall be fit for sea freight and incorporate adequate protection against ingress of moisture. Packing slips giving details of the items contained in each package shall be placed inside the package in a water proof envelop to enable easy identification and should contain cross references to item/part numbers of installation drawings/components lists. Copies of packing slips and other details should be sent separately to respective consignee and also to the concerned Zonal Office.

1.12 MAINTENANCE SUPPORT AND SPARES:

(a) The minimum recommended essential spares shall be quoted separately by the tenderer.

(b) The minimum recommended essential spares may be based on predicted rate of failure.

In case, the tenderer quotes the optional items as 'Set', the details of the components/items offered in the 'Set' must be spelt out clearly including their Make & Model and quantity.

SECTION 2.0

1.0 The Stereo & Digital Programme Input-Cum-Monitoring Rack should be suitable for:

i) Feeding stereo programmes to VHF FM transmitters;

ii) Feeding Digital programmes to VHF FM transmitters;

iii) Metering and monitoring of different programme inputs as per (i) and (ii) as above as well as signal at intermediate points in the audio chain and also detected signals.

Detailed specifications of rack and individual equipment are given below.

2.0 GENERAL AND BRIEF DESCRIPTION OF REQUIREMENT:

2.1 Suggestive block schematic (Drg. no. TM-15913) of the Stereo & Digital Programme Input-Cum-Monitoring Rack is enclosed for reference. However tenderer is required to provide complete equipment schematic diagram, wiring diagram and other technical details of the offered Stereo & Digital Programme Input-Cum-Monitoring Rack.

2.2 All audio lines from the Jacks & Equipment are to be connected to a terminal block to be located near the bottom of the rack for external feeding of cables by the Indenter. All the equipments are to be properly earthed with the existing equipment earthing system in the transmitter hall.

2.3 RFI/EMI filter shall be provided at mains input of the Stereo & Digital Programme Input-Cum-Monitoring Rack as per relevant standard provisions for effective rejection of the interference from the high power transmitters operating in the premises.

These Stereo & Digital Programme Input-Cum-Monitoring Rack will be used in High Power Transmitter halls i.e. the rack with full complement of equipment as to operate in a high RF field. As such all the specifications of the individual equipment as well as the full chain, are to remain valid in high RF fields.

The protection for power supply surge and spikes should be provided at the mains power supply input of rack. CE and FCC certification or equivalent BIS certification for offered equipment should be submitted with tender.

2.4 The main Rack will be used to install various equipment as per in Schedule of material /requirement for supply (unpriced). The rack will be of standards 19"equipment width size. The frame of the rack shall be of high quality extruded aluminum or high grade steel material as per IS code amended up to date. The aluminum profiles shall be either anodized or powder coated and the steel parts shall give pleasing and aesthetic look and superior and long lasting paint finish. The rack is to be of sturdy design. The thickness of main frame section shall be greater than or equal to 1.6 mm and for covers greater than or equal to 1.2mm.

The approximately overall size of rack shall be 2250(H) (Usable height 42 U) x 550 (W) x 700 (D) mm.

The final equipment lay out and Jack wiring drawing is required to be submitted by the tenderer and got approved from the Indenter after the placement of Supply Order.

2.5 The rack shall be fitted with jack strips [2 nos. Jack strip for analogue and 2 nos. Jack strip for digital] as per specification. Separate jack strips shall be provided for digital and stereo inputs.

2.6 Blank panels for above rack shall be supplied for coverage of blank space in the racks.

2.7 General requirements.

i)	Accessories: The equipment shall be supplied complete with all mating connectors, input output cords and power supply cords. Lamps and cooling fans are to be fixed in the rack.
ii)	The rack is to be supplied complete with all cabling/wiring/connectors.
iii)	The equipment shall be completely modular in design for easy maintenance and replacement. Photographs showing exterior and interior of each equipment to be forwarded with tender.
iv)	Spares: Essential and recommended spares components shall be quoted separately based on failure pattern. a) Cooling fan b) Any other item as per recommendation of Manufacturer
v)	Earthing & RF Shielding: An earth terminal shall be provided in the rack body for connecting audio earth connection. RF Shielding shall be provided by the tenderer.
vi)	The following equipment will also be installed in this rack in addition to equipment/items mentioned in Schedule of material /requirement for supply. (un-priced):

	Broadcast Processor (2 nos.), Mod monitor & Tone generator.
vii)	AC POWER SUPPLY DISTRIBUTION: The power supply distribution is to be provided with an MCB in the incoming circuit. Necessary RF filter is to be provided. The entire system is to operate on single phase supply. 5/15 Amps. 6 pin sockets are to be provided at different levels for various equipments.
viii)	DC SUPPLY: In case any of the Rack equipment is to operate on a separate DC Supply, one such unit is to be offered as spare and price are to be quoted separately.

3.0 TECHNICAL SPECIFICATIONS

3.1 STEREO MODE:

i)	Input	6 nos. active balanced for L & R separately
ii)	(a) Level Nominal	- 6 to 6 dBu (adjustable in steps of 1.0 dB)
	(b) Level Maximum	+20 dBu
iii)	Impedance	600 ohms/10k ohms or higher, balanced & floating
iv)	Output at selection	4 Nos., L & R balanced & floating
v)	Nominal Level	+ 6 dBu
vi)	THD + N (30 Hz to 20 KHz)	Better than 0.1%
vii)	Impedance	50 ohms or less, balanced
viii)	Frequency response (30 Hz to 20 KHz)	Better than ± 0.5 dB
ix)	Inter Channel Cross talk at 15 KHz between any two unrelated channels.	Better than 70 dB
x)	Phase difference, L/R	Better than 3 degrees
xi)	S/N (rms) unweighted (30 Hz to 20 KHz)	Better than 80 dB

3.2 DIGITAL MODE:

i)	Configuration	AES/EBU standard, 24-bit resolution.
ii)	Sampling Rate	32, 44.1 or 48 KHz automatically selected.
iii)	Connector	XLR-type, female, EMI-suppressed.
iv)	Input reference level	Variable within the range of -20.0 to 0.0 dBFS

4.0 Stereo & Digital input selector (BALANCED) (Solid State based):

Different STEREO & DIGITAL programme inputs dual selector (Solid State based) will be available at input of the rack. The above selector shall select one of these programmes at the output. Selected position will be indicated by LED's/bar graph.

4.1 STEREO INPUT SELECTOR (Solid State based):
Technical Parameters

i)	Number of stereo inputs	6 nos with XLR connectors
ii)	Output requirement	4 nos , XLR connector
iii)	Selection	By push buttons with solid state or relay switching, with memory.
iv)	Indication by	LED's
v)	Input/Output Isolation	90 dB
vi)	Output/ Input Isolation	90 dB
vii)	Frequency response (30 Hz to 20 KHz)	Better than ± 0.5 dB
viii)	THD+N (30 Hz to 20 KHz)	Better than 0.1%
ix)	S/N (rms) unweighted (30 Hz to 20 KHz)	Better than 80 dB

4.2 Digital INPUT SELECTOR (Solid State based):

Different Digital programme inputs selector (Solid State based) will be available at input of the rack. The above selector shall select one of these programmes at 4 independent outputs. Selected position will be indicated by LED's/ self illuminated switch.

Technical Parameters:

i)	Configuration :	AES/EBU standard, 24-bit resolution.
ii)	Number of Digital inputs	5 Nos. with XLR connectors
iii)	Output requirement	4 Nos. with XLR connector
iv)	Sampling Rate :	32, 44.1 or 48 KHz automatically selected.
v)	Selection	By push buttons with solid state or relay switching, with memory.
vi)	Indication by	LED's/ Bargraph
vii)	Impedance	110 Ohm

5.0 Metering & Monitoring selector for STEREO & DIGITAL INPUT (Solid State based):

5.1 Metering Selector: This selector is to be used for selecting any one of the Digital & Stereo inputs for the purpose of metering. Selected position is to be indicated by LED display/bar graph. Necessary D/A solidstate converters are to be included and provided by the tenderer

5.1.1 Stereo Mode:

i)	Number of Input	1 no ,XLR connector
iii)	Selection	By push buttons for stereo or digital mode
iv)	Indication by	LED Display

5.1.2 Digital Mode:

i)	Configuration :	AES/EBU standard, 24-bit resolution.
ii)	Number of Input	1 no ,XLR connector

iii)	Selection	By push buttons for stereo or digital mode
iv)	Indication by	LED Display

5.2 Monitoring Selector: This selector is to be used for selecting any one of the Digital & Stereo inputs for the purpose of monitoring. Selected position is to be indicated by LED display/bar graph. Necessary D/A solidstate converters are to be included and provided by the tenderer

5.2.1 Stereo Mode:

i)	Number of Inputs	2 nos. XLR connector
ii)	Selected Output	1no, XLR connector
iii)	Selection	By switch

5.2.2 Digital Mode:

i)	Configuration :	AES/EBU standard, 24-bit resolution.
ii)	Number of Inputs	1 no. XLR connector
iii)	Selected Output	1no. XLR connector

6.0 PRECISION INSTRUMENT QUALITY, STEREO DISPLAY UNIT:
The levels of selected signals are to be indicated on L&R bar graphs. Indication should be by suitable bargraph meter. Selection should not load the circuit.

6.1	Indication by	LED bar graph minimum of 20 elements, in three colours.
6.2	Value	Peaks, with selector switch
6.3	Measuring range	-20 to +24 dBu switchable pad/pads may be provided to change the reference level of bar graph as the maximum level to be displayed is +24 dBu.
6.4	Resolution	Better than 2 dBu in the range –20 to 0 dBu & 1 dBu in range 0 dBu to +24 dBu.
6.5	Frequency response	Better than ± 0.1 dB (30 Hz to 20 KHz)

7.0 STEREO & DIGITAL MONITORING AMPLIFIER

The monitoring amplifier is to be provided for monitoring of programme as selected by the selector switch and will be provided with a set of 2 high quality speakers for L/R channels.

7.1 SPECIFICATION FOR 40 WATTS STEREO & DIGITAL MONITORING AMPLIFIER:

7.1.1 GENERAL:

This specification pertains to professional STEREO & DIGITAL monitoring amplifier for use in transmitter centers.

The amplifier shall be able to deliver an output of 40 Watt RMS and 200 Watt Peak Music Power Out put (PMPO) per channel with both channels driven at 1 KHz at nominal input level.

The amplifier shall be capable of continuous operation round the clock without degradation in performance. Amplifier will operate on AC main single phase power supply as per section 1.0.

7.1.2 Technical:

The amplifier shall essentially have the following features:

7.1.2.1	Protection against current over-loads: The amplifier should mute in case of overload and revert to normal functioning once overload ceases to exist.
7.1.2.2	Protection against thermal overload: Temperature of power pack and heat sinks of both channels should be monitored and the amplifier should get muted with a visual indication whenever temperature exceeds permissible limits. In case of excessive temperature of heat sinks, the amplifier should be protected by fuse blow up or by any other suitable measures.
7.1.2.3	Monitoring amplifier output should be continuously monitored for DC components or very low frequency components which might endanger speakers, if present for longer durations. Amplifier output should get blocked in such an eventuality.
7.1.2.4	The amplifier should have protection against open circuit, full short circuit, ultrasonic frequencies and high RF fields
7.1.2.5	It should be switchable to stereo and dual mono operating modes.
7.1.2.6	Necessary function switches such as volume/gain control, low and high pass filters should be available on front panel. These controls shall be rugged and reliable.

7.1.3	**INPUTs :**	
7.1.3.1	No. of inputs (stereo)	1 no. (30 Hz to 15 KHz)
7.1.3.2	Input level	-10 dBu to +10 dBu for rated output
7.1.3.3	Input impedance	10K Ohms or higher (balanced)
7.1.3.4	CMRR (20 Hz - 20 KHz)	Better than 60 dB

7.1.4	**OUTPUT:**	
7.1.4.1	Power output	40 Watt RMS at 8 Ohms nominal impedance at suitable terminals.
7.1.4.2	Frequency Response with reference to 1 KHz over the entire range (40 Hz to 15 KHz.)	Better than ± 0.5 dB
7.1.4.3	THD+N at 1 KHz.	Better than 0.25% at rated output
7.1.4.4	S/N with input shorted and at rated output (unweighted rms) at 0 dBu input. (20 Hz - 20 Khz)	Better than 80 dB
7.1.4.5	Damping Factor	Better than 75 into 8 ohm at < 1 KHz.
7.1.4.6	Level difference between the Channels	Equal to or less than 0.5 dB
7.1.4.7	Phase difference between the Channels	Better than 20 degree, (40 Hz to 15 KHz.)
7.1.4.8	Inter Channel Cross talk at 15 KHz	Better than 70 dB at nominal level.

7.1.5	**DIGITAL AUDIO INPUT**	
7.1.5.1	Configuration :	Stereo AES/EBU standard, 24-bit resolution.
7.1.5.2	Sampling Rate :	32, 44.1 or 48 KHz automatically selected.
7.1.5.3	Connector :	XLR-type, female, EMI-suppressed.
7.1.5.4	Input reference level	Variable within the range of -20.0 to 0 dBFS

7.1.6 MECHANICAL:
The amplifier should be 19" rack mounting type for mounting in a rack.

8.0 SPECIFICATION FOR STEREO LOUDSPEAKERS SYSTEM

8.1 GENERAL:

The loudspeakers system shall be high fidelity two way speaker system based on state of the art technology. The enclosure of the speaker shall be of rugged structure and of attractive design. The front grill attached to the enclosure shall be attractively designed, acoustically transparent and shall be fixed rigidly so that it does not vibrate.

The tender should submit typical plots of Impedance vs. Frequency, Amplitude vs. Frequency, Phase vs. frequency and Polar pattern.

8.2 TECHNICAL SPECIFICATIONS:

8.2.1 POWER HANDLING CAPACITY:
The power handling capacity of each speaker should not be less than continuous
RMS : 100 Watts (for each channel)

8.2.2 Frequency Response: The speaker system should have frequency response within ±3dB between 45 Hz to 20 KHz with respect to 1 KHz. The frequency response curve shall be submitted with tender and shall be supplied with each unit.

8.2.3 Over load Protection: The speaker should be protected against momentary peak overloads upto 6 dB above rated power handling capacity.

8.2.4 Nominal Impedance:
Nominal Impedance of 8 Ohms shall be offered. Impedance Vs. frequency plot shall be submitted with tender and shall be supplied with each unit.

8.2.5 Sensitivity : At 1 watt input (2.8 Volts across 8 ohm), each speaker system shall produce SPL of 90 dB or more at a distance of 1 M on axis.
Distance of apparent acoustic source behind front surface shall be specified.

8.2.6 Directivity: The Q - factor of the speaker system shall be specified. Polar response of the speaker system shall be supplied for both horizontal and vertical plane in each unit.

8.2.7 Matching:
The two loudspeakers shall conform to the above requirements and shall be a matched pair as regards their sensitivity, frequency response, phase response and polar pattern.

8.2.8 Phase Response : The system should behave as a frequency independent time delay. Phase Vs. frequency response curve shall be submitted with tender.

8.2.9 Dimensions finish and weight of the speaker shall be specified by the tenderer.

8.2.10 Accessories: Matching transformer as required shall be supplied with the unit.

9.0 STEREO HEADPHONES:

9.1. GENERAL: The headphone shall be designed to reproduce full audio spectrum faithfully (without any colouration) for quality monitoring in broadcast studios. It shall be light weight in construction and shall have provision for stereo/mono monitoring. Left and right ear-pieces shall be matched to reproduce stereo images correctly. The provision shall exist for parallel wiring of the left and right systems for mono monitoring.

9.2. ELECTRICAL REQUIREMENTS:

The headphone shall conform to the following electrical requirements:

9.2.1	Frequency range	The headphone shall reproduce faithfully a range of 40 - 16000 Hz. A typical frequency response curve shall be submitted along with the tender.
9.2.2	Electrical impedance	2 x 600 ohms $\pm$ 10%
9.2.3	Sensitivity at 1 KHz	90 dB SPL for 1 mw input.
9.2.4	Max-power handling capacity	200 mw.
9.2.5	Total harmonic distortion	$\leq$ 1% at max. Permissible input level.

9.3. MECHANICAL REQUIREMENTS:

The diaphragm may be made of hard polyvinyl chloride or similar material and housed in polysterene housing. The ear cushions shall be circumaural and may have foam filled material. The headphone shall be comfortable for extended use.

The headphone shall further conform to the following mechanical requirements:

9.3.1 The headstrap shall be made of spring steel wire encased in or supported by leather or flexible plastic and the length shall be adjustable.

9.3.2 Average pressure on ears : Max 4 N

9.3.3 Cord of at least 1.6 m length shall be provided. The cord may be detachable.

9.3.4 Standard stereo/mono phone plug 6.35 mm dia shall be provided as required.

9.3.5 Weight of the headphone without cord shall not exceed 250 grams.

10.0 STEREO AF JACK STRIP PANELS:

STEREO AF JACK STRIP PANELS:

10.1 GENERAL DESCRIPTION:

The stereo audio jack strip panels shall be used for stereo audio patching and termination in Broadcast Studios. The jack strip shall be of 2U height containing 20 jacks in each of two rows (one for left and other for right signal). The jack strip shall be suitable for mounting on standard 19" equipment rack. There shall be provision for fixing of removable legend strip with plastic cover on top/bottom of the jacks. The jack strip shall be wired with twin core shielded audio cable conforming to AIR specification.

All inner and outer contacts of jacks shall be wired to the tag block. Inter connections shall be made at the tag black.

The length of audio cable bunch shall be such that the jack strips can be mounted at a height of 1500 mm or below for full size racks through proper routing of cable bunch. The wiring bunches shall be neatly laid and clamped to the body of the rack with adequate flexibility affording pulling of jack strip outside the rack on its front without strain on cables for attending to jack wiring. The wires shall be suitably marked with ferrules on both ends for easy identification.

10.2 JACK STRIP SPECIFICATION:

Jack Panel	: General purpose black phenolic resin
Frame	: Plated, steel or aluminum
End Bracket and side Strip	: Cold rolled plated steel or aluminum
Designation Channel	: On top/bottom of jack strip
Marking Strip	: White plastic, matt finish
Marking Strip Cover	: Clear extruded plastic
No. of Jacks in each row	: 20, placed at equal distance centre to centre

10.3 JACK CONSTRUCTION:

The jack shall have rugged steel frame, press welded with copper alloy corrosion resistant springs. The contact shall be of welded crossbar palladium/gold for providing reliable, low resistance and long life contact. The jack shall be 20 point jack providing break on both wires and an isolated offset earthing lug. The jacks shall have soldered tinned lug terminals. Make, type and technical details and drawings of jacks are to be supplied with the tender.

10.3.1 TECHNICAL SPECIFICATION OF JACKS:

(i) Electrical:

(a) Contact Resistance	: 0.05 ohms maximum
(b) Insulation Resistance	: 1000 mega ohms min.
(c) Dielectric withstanding	: 500 VRMS AC voltage

(ii) Mechanical:

(a) Bushings	: Plated copper alloy bushings to accept standard 6.35 mm/ 0.25 inch dia plug
(b) Insertion Force	: 7 lb (3.17 kg) maximum

(c) Withdrawal Force : 1.5 lb (0.679 kg) minimum
(d) Life : Min. 20,000 insertion/withdrawal cycles
(e) Vertical Spacing : 0.625 ± 0.01 inch centre to centre between jacks for stereo

11.0 STEREO AF PATCH CORDS

STEREO AF PATCH CORDS:

Two jacks will be joined together to form Stereo Set. Colour of Jacks/Sleeves and audio cables will be different to indicate L/R clearly.

11.1 PATCH CORDS WITH MATCHING PLUGS:

These shall be supplied in lengths of 3' and 6' with 6.35 mm/0.25 inch dia twin plugs at both ends of the patch cord. Individual plugs will have tip, ring and sleeve construction with complete continuity of thermoplastic insulation between plug elements. Two of these plugs are to be placed into handles to provide a twin-plug at each end of the patch cord. The two are electrically independent 3 conductor plugs spaced 0.625 inch centre to centre, with self-alignment feature. The plugs shall be made of Nickel-plated brass with black Bakelite molded cover.

The patch cord shall be made of 14/68 standard copper wire covered with insulating material with 98% tinned copper braided shielding and black thermoplastic outer braid woven over insulated conductors and shield. Make, type, origin and technical specification of patch cords are to be submitted along with the tender.

12.0 RF CONNECTOR:

RF CONNECTOR:
4 nos. of RF adopters are also to be provided. These are to be used for feeding RF power to Demodulators or Analyzer. These connectors are to be of BNC type.

13.0 DISTRIBUTION AMPLIFIERS:

The analogue stereo and digital distribution amplifier will be used for feeding an analogue stereo and digital programme to various destinations.

The analogue stereo distribution amplifier should be solid state audio amplifier having one stereo input and 4 separate individually adjustable stereo outputs.

The digital distribution amplifier should be solid state having one digital input and 4 separate digital output.

13.1 Analogue Stereo distribution amplifier:

1. **INPUT IMPEDANCE**
   Input impedance shall be ≥ 10 k ohm (balanced).
2. **INPUT LEVEL**
   (a) Nominal : 0 dBu
   (b) Maximum : +20 dBu
3. **GAIN**
   Shall have adjustable gain of ± 5 dB with respect to nominal setting.
4. **OUTPUT LEVEL**

(a) Nominal : 0 dBu
(b) Maximum : +20 dBu

5. **OUTPUT IMPEDANCE**
Output impedance shall be ≤ 50 ohm (balanced).

6. **FREQUENCY RESPONSE**
± 0.5 dB in frequency range of 40 Hz to 20 kHz.

7. **TOTAL HARMONIC DISTORTION**
Less than 0.1% at nominal level (1 kHz) and less than 0.5% at maximum output level. (Terminated into a load of 600 ohm) throughout the audio frequency range of 40 Hz to 20 kHz.

8. **SIGNAL TO NOISE RATIO AT NOMINAL INPUT/OUTPUT, RMS UNWEIGHTED (22 Hz-22kHz)**
≥ 90 dB

9. **INTER OUTPUT LOADING**
(a) If one of the outputs gets short circuited, the level on the rest of the outputs shall not fall by more than 0.3 dB.
(b) If two of the outputs got short circuited, the level on each of the remaining outputs shall not fall by more than 0.6 dB.

10. **INTER-CHANNEL PHASE DIFFERENCE**
Not more than 5 degree in frequency range of 125 Hz to 10 kHz and 10 degree from 40 Hz to 20 kHz.

11. **INTER-CHANNEL LEVEL DIFFERENCE**
Within ± 0.5dB, from 40 Hz to 20 kHz.

12. **INTER-CHANNEL CROSS TALK**
Equal to or better than 60 dB at 20 kHz at nominal level.

13. **INPUT/OUTPUT CONNECTORS**
Input and all outputs shall be on 3-pin XLR connectors.

13.2 Digital distribution amplifier:

	DIGITAL AUDIO INPUT	
i	Configuration :	AES/EBU standard, 24-bit resolution.
ii	Sampling Rate :	32, 44.1 or 48 KHz automatically selected.
iii	Connector :	XLR-type, female, EMI-suppressed.
iv	Input reference level	Variable within the range of -20 to 0 dBFS

	DIGITAL AUDIO OUTPUT	
i	Configuration:	AES/EBU standard, 24-bit resolution.
ii	Sample Rate :	32, 44.1 or 48 KHz, selected in software
iii	Connector :	XLR-type, male, EMI-suppressed.
iv	Impedance	110 Ohm

14.0 AUDIO WIRING:

AUDIO WIRING: All audio wiring will be carried out with high quality 2 core shielded Teflon multi strand tinned copper Audio Cable. Technical details of the offered audio cable are required to be enclosed with tender by the tenderer.

14.1. GENERAL DESCRIPTION:
This cable is required for wiring of jack strips in audio equipment racks in Broadcast Studios/ Transmitting stations.

14.2 CORES:
Two cores, twisted. Each core conductor to be formed of 7 strands of 0.193 mm dia. (36 SWG) annealed tinned copper wire conforming to IS 8130 amended to date or higher number of strands of thinner gauge to give equivalent core cross section for better flexibility.

14.3 CORE INSULATION:
Each core conductor shall have PVC insulation of minimum radial thickness of 0.3 mm, conforming to type I of IS 5831 amended to date. The cores shall be color coded black and red or any other distinguishing color code.

14.4 FINISH AND SHIELDING:
The two cores shall be twisted together so as to give circular cross section to the cable for maximum flexibility. The shielding shall consist of about 80 strands of minimum 40 SWG annealed tinned copper wires closely woven in groups of 4-6 strands to give at least 98% coverage.

14.5 SHEATH:
The sheath over the shielding shall be of PVC of nominal thickness of 0.3 mm conforming to type 6 of IS 5831 amended to date.

14.6 OVERALL DIMENSION: As per IS.

14.7 **SPARES (OPTIONAL):**
Necessary spares required for the maintenance of the equipment should also be quoted separately. All India Radio at its own discretion may procure essential spares for a value not exceeding 10% of the cost of equipments. All the tenderer should quote all the essential spares.

SECTION 3.0

INSPECTION DETAILS

The inspection for acceptance of the Stereo & Digital Programme Input-cum-Monitoring Rack will be carried out at Delhi in India by Engineers of All India Radio (AIR) in accordance with Acceptance Test Procedure/Protocol (ATP). All facilities like complete set of measuring instruments, power supply, manual assistance etc. will be provided by the tenderer. Complete details and specifications of the Stereo & Digital Programme Input-cum-Monitoring Rack will be checked and all parameter values will be measured.

It is mandatory that all these checking and measurements i.e. Operational checking of the Stereo & Digital Programme Input-cum-Monitoring Rack and measurements are carried out well in advance and these measurement details, graphical printouts and figures must be available, at the time of inspection. These must also be submitted to All India Radio along with the call for inspection of the Stereo & Digital Programme Input-cum-Monitoring Rack well in advance for analyzing etc.

Section 4.0 (A)

1. SCHEDULE OF MATERIAL/ REQUIREMENT (UNPRICED) FOR SUPPLY OF STEREO & DIGITAL PROGRAMME INPUT CUM MONITORING RACK

S. No.	Description	Make & Model	Unit	Qty.
1.1	Stereo & Digital Programme Input-Cum-Monitoring Rack broadly comprising of following equipment and Items and as per AIR specification		Set complete System	1 Set Complete System
(i)	Stereo programme input selector switch (Solid State based)-1No.			
(ii)	Digital programme input selector switch (Solid State based)-1No.			
(iii)	Stereo & Digital metering selector(Solid State based) with D/A convertor for digital Input.-1Set			
(iv)	Stereo & Digital monitoring selector(Solid State based) with D/A convertor for digital Input.-1set			
(v)	Level display unit/bar graph-1No.			
(vi)	Stereo & Digital Monitoring amplifier-(1Set) (1+1)			
(vii)	High quality stereo speaker-1set			
(viii)	Stereo AF Jack panels of 20 Jacks each-(2 sets)			
(ix)	Digital AF Jack panels of 20 Jacks each -(2 sets)			
(x)	RF Patch panel-1No			
(xi)	Stereo AF patch cords-(4 sets) 3' & 6' (2 each)			
(xii)	Digital Stereo AF patch cords-(4sets) 3' & 6' (2 each)			
(xiii)	Stereo Distribution Amplifier-1 no.			
(xiv)	Digital Distribution Amplifier-1 no.			
(xv)	Studio Head Phones- 4 Sets			
(xvi)	Power supply cables, audio cables and connectors for each individual equipment and one spare cord-1 Lot			
1.2	Technical Manuals (for Installation, Testing, Commissioning, Operation & Maintenance, including theory of operation and fault diagnosis) COLOUR printed and duly bound for Stereo & Digital Programme Input-Cum-Monitoring Rack along with soft copy on CD shall be supplied as per distribution given below:			
	(i). For Zonal Office (Project Wing) {Within one month of issue of Acceptance of Tender}{irrespective of number of Stereo & Digital Programme Input-Cum-Monitoring Rack to be ordered}		Set	1 Set
	(ii). For Consignee {To be supplied along with the equipment}		Set	2 Sets

Section 4.0 (B)

SPARES (OPTIONAL)

2. SCHEDULE OF MATERIAL/REQUIREMENT FOR SUPPLY (ESSENTIAL AND RECOMMONDED SPARES) (Unpriced) (For one set of Stereo & Digital Programme Input-Cum-Monitoring Rack)

SNo.	Description	Make & Model	Unit	Qty
2.1	Cooling fans complete		No	1 No
2.2	DC SUPPLY : In case any of the Rack equipment is to operate on a separate DC Supply , one such unit is to be offered as spare and price are to be quoted separately		No	1 No
2.3	Any other item as per recommendation of manufacture.		Lot	1 Lot

All India Radio at its own discretion may procure essential spares for a value not exceeding 10% of the cost of equipments. All the tenderer should quote all the essential spares.

List of Consignee

A. FM Transmitters under BIND Scheme 2021-26			
Sr. No.	Location	District	State/UT Name
1.	Nandyal	Kurnool	Andhra Pradesh
2.	Chintapalle	Visakhapatnam	Andhra Pradesh
3.	Vizianagaram	Vizianagaram	Andhra Pradesh
4.	Darbhanga	Darbhanga	Bihar
5.	Katihar	Katihar	Bihar
6.	Saharsa	Saharsa	Bihar
7.	Gopalganj	Gopalganj	Bihar
8.	Jagdalpur	Bastar	Chhatisgarh
9.	Kondagaon	Kondagaon	Chhatisgarh
10.	Narayanpur	Narayanpur	Chhatisgarh
11.	Bailadila	Dakshin Bastar Dantewada	Chhatisgarh
12.	Kanker	Uttar Bastar Kanker	Chhatisgarh
13.	Dwarka	Devbhumi Dwarka	Gujarat
14.	Bhuj	Kachchh	Gujarat
15.	Radhanpur	Patan	Gujarat
16.	Bhavnagar	Bhavnagar	Gujarat
17.	Churah	Chamba	Himachal Pradesh
18.	Sarkaghat	Mandi	Himachal Pradesh
19.	Pakur	Pakur	Jharkhand
20.	Simdega	Simdega	Jharkhand
21.	Giridih	Giridih	Jharkhand
22.	Kodarma	Kodarma	Jharkhand
23.	Udupi	Udupi	Karnataka
24.	Leh	Leh(Ladakh)	Ladakh
25.	Singrauli	Singrauli	Madhya Pradesh
26.	Ambajogai	Beed	Maharashtra
27.	Baleshwar	Baleshwar	Orissa
28.	Jaisalmer	Jaisalmer	Rajasthan
29.	Sikar	Sikar	Rajasthan
30.	Anupgarh	Ganganagar	Rajasthan
31.	Vellore	Vellore	Tamil Nadu
32.	Salem (Yercaud)	Salem	Tamil Nadu
33.	Farrukhabad	Farrukhabad	Uttar Pradesh
34.	Basti	Basti	Uttar Pradesh
35.	Etah	Etah	Uttar Pradesh
36.	Hardoi	Hardoi	Uttar Pradesh

37.	Nainital	Nainital	Uttarakhand
38.	Pithoragarh	Pithoragarh	Uttarakhand
39.	Munasyari	Pithoragarh	Uttarakhand
40.	Tonk	Tonk	Rajasthan
41.	Bonaigarh	Sudergarh	Orissa
42.	Vallabhnagar	Udaipur	Rajasthan
43.	Kalimpong	Darjeeling	West Bengal
44.	Motihari	East Champaran	Bihar
45.	Dharampur	Solan	Himachal Pradesh
46.	Morbi	Morbi	Gujrat
B: Replacement of Outlived Akashvani Transmitters approved by Empowered Committee			
S.No.	Location	District	State
47.	Macherla	Macherla	Andhra Pradesh
48.	Tirupati	Tirupati	Andhra Pradesh
49.	Diphu	Diphu	Assam
50.	Guwahati	Guwahati	Assam
51.	Ambikapur	Ambikapur	Chhattisgarh
52.	Saraipalli	Saraipalli	Chhattisgarh
53.	Delhi-	Delhi	Delhi
54.	Rajkot	Rajkot	Gujarat
55.	Vadodara	Vadodara	Gujarat
56.	Kathua	Kathua	J&K
57.	Rajouri	Rajouri	J&K
58.	Bengaluru	Bengaluru	Karnataka
59.	Dharwad	Dharwad	Karnataka
60.	Mangaluru	Udipi	Karnataka
61.	Mysore	Mysore	Karnataka
62.	Kozhikode	Kozhikode	Kerala
63.	Manjeri	Manjeri	Kerala
64.	Chattarpur	Chattarpur	Madhya Pradesh
65.	Gwalior	Gwalior	Madhya Pradesh
66.	Jabalpur	Jabalpur	Madhya Pradesh
67.	Mandla	Mandla	Madhya Pradesh
68.	Rajgarh	Rajgarh	Madhya Pradesh
69.	Jalgaon	Jalgaon	Maharashtra
70.	Tura	Tura	Meghalaya
71.	Kohima	Kohima	Nagaland
72.	Baripada	Baripada	Odisha
73.	Bhawanipatna	Bhawanipatna	Odisha
74.	Sambalpur	Sambalpur	Odisha
75.	Chennai	Chennai	Tamilnadu

76.	Dharmapuri	Dharmapuri	Tamilnadu
77.	Tiruchirapalli	Tiruchirapalli	Tamilnadu
78.	Longthrai	Longthrai	Tripura
79.	Agra	Agra	Uttar Pradesh
80.	Amethi	Amethi	Uttar Pradesh
81.	Ayodhya	Ayodhya	Uttar Pradesh
82.	Lucknow	Lucknow	Uttar Pradesh
83.	Almora	Almora	Uttarakhand
84.	Kurseong	Kurseong	West Bengal
85.	Shantiniketan	Shantiniketan	West Bengal
86.	Siliguril	Siliguril	West Bengal
87.	Pune	Pune	Maharastra
88.	Ahmedabad	Ahmedabad	Gujrat
89.	Salumber	Salumber	Rajasthan
90.	Narnaul	Narnaul	Rajasthan
91.	Diphu	Diphu	Assam
92.	Jiribam	Jiribam	Manipur
93.	Rairangpur	Rairangpur	Odisha