PRASAR BHARATI
(India's Public Service Broadcaster)
New Broadcasting House, Akashvani Delhi
New Delhi-110001.

No. J-12024/8/2025-GMU-AIR.Delhi Dated: 30.07.2025

Subject: Publication of Draft Technical Specification for Supply of Digital Transmission Console at Akashvani, Delhi for seeking Vendors/OEMs feedback and Budgetary quote.

1. Technical Specification for supply of Digital Transmission Console for Akashvani, Delhi is being uploaded to invite feedback from the Vendors/OEMs dealing with Supply of such equipments. The interested parties are requested to provide comments/feedback on this technical specification.
2. The budgetary price of the offered Digital Transmission Console and associated equipment may also be submitted.
3. All these information may be provided by E-mail to ddgenbh@prasarbharati.gov.in & enggstorenbh@gmail.com on or before 15.08.2025.

30.07.2025

(JITENDER PRUTHI)
Dy. Director General (E)

Technical Specification for Digital Transmission Console for Akashvani Delhi
Specification No. AVDELHI/1
Dated: 25/7/2025

PRASAR BHARATI / प्रसार भारती
(INDIA'S PUBLIC SERVICE BROADCASTER) / भारत का लोक सेवा प्रसारक
AKASHVANI DELHI/ आकाशवाणी दिल्ली

Technical Specification for Digital Transmission Console

SECTION-I: GENERAL

Scope of Project: Supply of 4 Nos of Digital Transmission Consoles at the Akashvani Delhi.

Documents to be submitted with Tender Document

The tenderer must submit the following documents along with the tender:

A Clause-by-clause full compliance statement in respect to specifications of Consoles (**Clause 1&2 of Section-III**) from the OEM of the offered Consoles.
Detailed literature of Consoles giving complete details of features and performance data on non-returnable basis to facilitate the technical evaluation.
A copy of un-priced Bill of Material (BOM) indicating make, model no. , complete configuration details of offered hardware shall be quoted clearly.

Tender Evaluation

The tender shall be technically evaluated on the basis of conformity of bid to Technical specifications.
Technical evaluation shall be done on the basis of compliance statement, technical literature related to quoted products.
The bids fully meeting technical specifications shall be considered technically fit.

Supply & Inspection

All the Hardware would be inspected at the station for their conformity to

Technical Specifications.
All the consoles shall be configured as per AIR requirement before supply.

Instruction Manual

A soft copy of all manuals shall also be provided to station.

Warranty & Maintenance

The Consoles shall be warranted for trouble free operation for a minimum period of three years from the dates of delivery to the respective consignees.
In case of failure of any equipment or its sub module within the warranty period, the tenderer will provide a replacement part to the consignee within a week from the date of reporting of failure.
No separate charges will be paid for visit of engineers for attending to faults and repairs or supply of spare parts during the warranty period.

SECTION-II: BILL OF MATERIAL

S. No.	Item/ Equipment	Quantity	Units
1	**Digital Transmission Console**	4	Nos

SECTION-III: TECHNICAL SPECIFICATIONS

1.Features of Digital Transmission Console

1.1	**General Features of Consoles**			
1.1.1	The console shall be compact and ergonomically designed professional product and suitable for reliable operation on 24x7x365 basis working.			
1.1.2	It shall be housed in rust-proof pre-painted cabinet/Anodized Metal cabinet.			

1.1.3	The main electronics portion shall be in separate 19-inch rack mountable unit or it should be built-in within Fader surface. The Operational part (Containing Faders, Switches & Level Display etc.) of console i.e console Fader surface shall be suitable for Tabletop mounting. However, all the parts of console shall be from the same OEM.			
1.1.4	The layout of modules / parts / components in the console shall be professional to permit easy access to the wiring, inspection, repairs / servicing.			
1.1.5	Inputs, Outputs & other connectors shall not be on the working/Operating Area of the console.			
1.16	All switches / buttons / Selection Points operable by operator shall be sturdy and designed for reliable operation for long hours			
1.1.7	The controls for output bus assignment, channel on/off, monitoring level control, talkback & signaling etc. shall be appropriately located on the control surface of the console			
1.1.8	All selection points on the console surface shall have clear illuminated status indication or adjacent display for easy understanding			
1.1.9	Status Indications shall be provided for signaling, talk-back from other consoles, channel selection & PFL indication			

1.1.10	The controls meant for presenter/RJ like input source selection, output bus assignment, monitoring, talk-back, signaling etc shall be appropriately located on the console. All other controls shall be accessible only to the system administrator			
1.1.11	The faders on the console surface shall be long–throw (100 mm) and shall be of reputed make			
1.1.12	The console shall be totally self-contained and shall function on day to day basis without aid of (connecting to) external computer/Laptop. However, if required, the use of computer/laptop is allowed to upgrade the firmware and configure the console. Once configured, the console shall function as standalone device without being connected to any computer/Laptop. However, various operational features like channel routing, mix-minus, phantom ON/OFF, EQ, Gain, panning etc shall be available for system administrator.			
1.1.13	It should be possible to save & recall the configuration settings of console with appropriate interface screen & control port etc for future reloading by authorized user/administrator.			
1.1.14	The console should support at least two levels of users i.e. Admin & Operator. Admin user should only have power to change the configuration of			

	the console.			
1.1.15	Operating Environmental conditions: The consoles shall be able to work without any problem in the following conditions: Operating Temperature: From 10º C to 40º C Operating Humidity: Up to 90% RH (non-condensing) at 30º C.			
1.1.16	The system shall be used in the vicinity of high frequency & high Power Radio frequency field. Therefore, the system shall conform to electromagnetic Standards as per relevant guidelines for protection requirements relevant to electromagnetic phenomena as per national/international standards.			
1.2	**Digital Parameters**			
1.2.1	The consoles shall have state-of-the-art digital circuitry.			
1.2.2	All the internal Audio Processing in the consoles shall be fully DSP (digital signal processing) based.			
1.2.3	A to D and D to A converters shall have minimum 24 bit resolution.			
1.2.4	Various Control Circuits in the console shall be digital and entire switching shall be through solid-state digital switches.			
1.2.5	It should have 48 kHz sampling Rate as default. All analogue signals shall be digitized to default Sampling Rate. All Digital signals shall also be			

	sample rate converted to default sampling rate.			
1.2.6	The console should have Internal Digital reference signal.			
1.3	**Audio Inputs**			
1.3.1	**Consoles** shall accept the Mono Mike, Stereo Line (Analogue) & Digital Audio Inputs.			
1.3.2	The microphone inputs shall be available on 3-pin XLR connectors. If the same is not available in XLR, suitable breakout for Balanced Signal shall be provided by bidder.			
1.3.3	The Analogue line level inputs and outputs & Digital inputs & outputs shall be balanced. These shall be available on balanced 3-pin XLR or on 'D' type connector or on RJ 45 connectors.			
1.3.4	**Consoles** shall have at least 4 Mono Mike Inputs.			
1.3.5	**Consoles** shall have 4 (Four) Stereo/8 (Eight Mono) Line Inputs.			
1.3.6	Consoles shall have minimum 2 (Two) Digital Line (Stereo) Inputs either in AES format or in USB format.			
1.3.7	Each of the Mono Mike input shall have switchable Phantom Supply of 48 Volts DC. It should be possible to switch on or off the phantom supply using Control available on the fader surface of console or from configuration software.			
1.3.8	It should be possible to reverse the Phase of each of the Mike input source.			

1.3.9	It should be possible to route the Microphone input to Stereo Outputs using Pan Control on fader surface.			
1.3.10	It should be possible to re-balance the Stereo Analogue input to Stereo Outputs using Balance Control on fader surface.			
1.3.11	Digital Audio Input signal with sampling rates of 44.1 KHz, 48 KHz, 96 kHz and Bit rate of 16/24 shall be accepted.			
1.3.12	Console shall have a built-in Sampling Rate convertor on each Digital input so as to convert Digital Audio Signals of different sampling rate to default sampling rate.			
1.3.13	Console shall have audio Bluetooth interface.			
1.4	**Features of Input Faders**			
1.4.1	Each Fader/Channel shall have Selection for routing/assigning any of the input to any of the four output program bus.			
1.4.2	Each fader shall fade in from infinity to zero to provide nominal output.			
1.4.3	Each Fader shall have facility of display in professional manner, where Name of input Source can be displayed.			
1.4.4	Consoles shall have minimum 12 Faders .			
1.4.5	In case, the frame size (meeting the requirement of numbers of faders) is not exactly matching the requirement of input faders, higher frame size shall be offered.			
1.4.6	Fader start operation using GPIO shall be provided.			

1.5	**Audio Output (Logical/Bus)**			
1.5.1	Consoles shall provide four independent Audio Outputs after mixing various input sources as per various fader configurations selected by user			
1.5.2	Consoles shall provide at least two independent mix-minus/aux bus outputs (mono) for at least two input sources Accordingly, provision shall be made in at least two faders for mix-minus/aux selection for input sources connected to those faders.			
1.5.3	It should be possible to route any of above mentioned outputs to any physical Audio output.			
1.6	**Audio Outputs (Physical)**			
1.6.1	All Consoles shall have at least 1 (one) AES/EBU Digital Line (Stereo) physical Outputs.			
1.6.2	All Consoles shall have 4 (Four) stereo Analog Stereo Line physical outputs.			
1.6.3	It should be possible to route any of Logical/Bus outputs to any physical Audio output.			
1.7	**Audio over IP (AES 67)(Dante)**			
1.7.1	Console shall have Audio over IP using AES67(Dante).			
1.7.2	Console shall have Audio Over IP ports. Audio over IP port should support simultaneous transport of multiple Digital Audio Channels in both directions.			
1.7.3	Audio over IP port should support simultaneous transport of multiple Digital Audio Channels in both			

	directions.			
1.7.4	It should be possible to route any Input or Output (Logical/Bus output) to any other Console (installed in other studio) using Audio Over IP port.			
1.7.5	Various inter Studio outputs like Talkback, Console Outputs etc. shall travel between various Studios (MP Studio, Transmission Room & Control Room) over Audio Over IP.			
1.7.6	It should be possible to inter-connect all studios by running Ethernet Cables from Audio Over IP ports of each console to Audio over IP switch.			
1.8	**Monitoring Outputs, Pre-Fade Listening (PFL) & Headphone Monitors**			
1.8.1	Two separate Stereo Analogue monitoring outputs of 0 dBu nominal level (with Maximum Level of +10 dBu) shall be available for monitoring on external speakers.			
1.8.2	In addition to above Monitoring outputs, an inbuilt or external PFL speaker (Mono) & a Headphone Monitoring output to monitor all input/output channels shall also be provided.			
1.8.3	It should be possible to monitor all inputs & (Logical/Bus) output channels on these monitoring outputs.			
1.8.4	Necessary Level control facility shall be available for these outputs.			
1.8.5	PFL, Talkback and one Monitoring Output should get muted on activation (Switching on/fading in) of one set of Microphone			

	inputs (those installed in Same room as the console).			
1.8.6	Second Monitoring output should get muted on activation (Switching on/fading in) of second set of Microphone inputs (those installed in Recording Studio).			
1.8.7	Headphone outputs of Monitoring outputs shall not be muted by activation of microphones.			
1.9	**Talkback**			
1.9.1	Talk-Back facility with two other consoles installed in other rooms shall be possible.			
1.9.2	It should be possible to route Talkback to monitoring output (one providing Monitoring in the Recording Studio)			
1.9.3	One of Announcer (RJ) mike shall be used as Talkback Mike also.			
1.10	**Metering**			
1.10.1	At least two pair of LED/LCD Level Meters shall be available to monitor the level of any of the output buses.			
1.10.2	These Meters shall show Audio Level (Separately for Left & Right of Stereo Audio Signal) in internationally recognized format i.e. PPM or VU.			
1.11	**Ethernet Port**			
1.11.1	Console should have Ethernet port for remote control & configuration purpose.			
1.12	**Signaling and Warning Lights**			
	Console shall use either Physical GPIO ports or GPIO over Ethernet for configuring fader start/Stop			

1.12.1	operation signals as well as intimation of ON-AIR /Ready Signal to Studio/Control Room.			
1.12.2	Consoles should have sufficient GPIO/Relays which shall operate on the following conditions When any of Microphones installed in Recording studio is active When any of Microphone installed in Recording Booth (where Console is installed) is active. When ON-AIR signal from Control Room is active. When any of the above three conditions is true. By operation of these GPIO/Relay, it shall be possible to glow warning Lamps.			
1.13	**Power Supply**			
1.13.1	The console shall work on 200-240V, 48-52 Hz single phase A.C. Supply.			
1.13.2	The power supply unit of the console shall be protected against overload, short circuit and over-voltage.			
1.13.3	The power supply of console (all the units of console) shall be convection-cooled and shall not incorporate any cooling fan.			
1.14	**Telephone Hybrid**			
1.14.1	The console shall have 2 Line Telephone/Mobile Connection interface which shall be PSTN or Mobile Bluetooth and same shall be available on at least 2 faders with bi-directional communication.			

1.14.2	Necessary interface PSTN inputs/Bluetooth shall be provided within the console.			

2.Audio Specifications for both Digital Production Console and Digital Switching-Transmission Console

2.1	**Mono Mike Inputs**			
2.1.1	Input Impedance : ≥ 2 K ohms balanced.			
2.1.2	Input Level range: Adjustable -60 dBu to 0 dBu (Ref. 0 dBu = 0.775V rms)			
2.1.3	Mic/Line Input Impedance : ≥ 2 K ohms balanced			
2.2	**Stereo Line (Analogue) Inputs**			
2.2.1	Input Impedance : ≥ 10 K ohms balanced			
2.2.2	Nominal Input Level : +0 dBu			
2.2.3	Input Headroom : 18 dB above nominal input.			
2.3	**Analogue Outputs**			
2.3.1	Output (Source) Impedance : ≤ 60 ohms balanced			
2.3.2	Output load Impedance : 600 ohm			
2.3.3	Nominal Output Level : + 0dBu			
2.3.4	Maximum Output Level : 18 dBu.			
2.4	**Digital Outputs**			
2.4.1	Level Reference : 0 dBFS digital = + 18 dBu analogue			

	(= 0 dBu = -18 dBFS)			
2.4.2	Signal Format : AES-3 (AES/EBU)			
2.4.3	Output Impedance : 110 ohm Balanced			
2.4.4	AES3 Output Compliance : 24 bit			
2.4.5	Output Sampling Rate : 48 kHz			
2.4.6	D/A Conversion : 24 bit			
2.5	**Frequency Response**			
2.5.1	Mike input of -35 dBu and Console Analogue outputs of +4 dBu/Console Digital Outputs of -20dBFS in the frequency range of 20 Hz to 20 KHz : within ±0.5 dB			
2.5.2	Analogue input of +4dBu/ Digital input of -20dBFS and Console Analogue Outputs of +4 dBu/ Console Digital Outputs of -20dBFS in the frequency range of 20 Hz to 20 KHz : within ±0.5 dB			
2.6	**Total Harmonic Distortion+Noise**			
2.6.1	Mike input of -60 dBu and Console Analogue Output of +4 dBu at 20 Hz to 20 Khz and measurement with 80 Khz Low Pass filter : < 0.3%			
2.6.2	Line Analogue input of +4 dBu and Console Analog Output of +4 dBu /Digital Output of -20 dBFS at 20 Hz to 20 Khz and measurement with 80 Khz Low Pass filter : < 0.02%			
2.7	**Equivalent Input Noise Level and Signal to Noise Ratio**			
2.7.1	Equivalent input noise for mike Input with Mike input level of -60 dBu and Analogue output Level of +4 dBu and measurement band limited to 20 Hz-20 kHz. : < - 122 dBu			
	Signal to Noise Ratio for Line			

2.7.2	Channel with Analogue Line input level of +4 dBu and Analogue output Level of +4 dBu and measurement band limited to 20 Hz-20 kHz : > 80 dB			
2.8	**Stereo Separation & Inter Channel Cross Talk**			
2.8.1	Stereo Separation (Between L&R of same Output) with Analogue input of Level +18 dBu and Console Analog Output of +18 dBu and the measurement will be taken on 20Hz, 1 KHz and 20 KHz : >60dB			
2.8.2	Inter-Channel cross-talk with Analogue input Level of +18 dBu and Console Analog Output of +18 dBu and the measurement will be taken on 20Hz, 1 KHz and 20 KHz : > 90 db			