File No.J-11018/9/2023-Studio Design-P&D Unit

सत्यमेव जयते

प्रसार भारती/PRASAR BHARATI

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

योजना एवं विकास एकक / Planning & Development Unit

आकाशवाणी भवन, संसद मार्ग /Akashvani Bhavan, Parliament Street

नई दिल्ली/New Delhi-110001

सं./No.J-11018/9/2023-Studio Design-P&D Unit

दिनांक:Dated:25.02.2025

Subject: Publication of Revised Draft Technical Specification of Digital Production Console for seeking Vendors/OEMs feedback and budgetary quote

1. Revised Technical Specification of Digital Production Console is to be 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. Vendors/OEMs are also requested to provide availability of local content and percentage of local content in the offered equipment.
3. The budgetary price of the offered Digital Production Console and associated equipment may also be submitted.
4. All these information may be provided by E-mail to " airstudiodesign331@gmail.com " on or before 11.03.2025.

25.02.2025

K.Murugan
(Dy.Director General(E-SD))
For Director General

के. मुरुगन / K. MURUGAN
उप महानिदेशक (अभि.) / DDG (Engg.)
योजना एवं विकास / P & D
आकाशवाणी महानिदेशालय / DG:AIR
आकाशवाणी भवन / Akashvani Bhavan
नई दिल्ली / New Delhi

PRASAR BHARATI / प्रसार भारती

(BROADCASTING CORPORATION OF INDIA) / भारतीय प्रसारण निगम

DIRECTORATE GENERAL: ALL INDIA RADIO / आकाशवाणी महानिदेशालय

PLANNING AND DEVELOPMENT UNIT / योजना एवं विकास एकक

Technical Specification for Digital Production Consoles under BIND Scheme for the Period 2021-22 to 2025-26

SECTION-I : GENERAL

1. Background & Objective of Project

1.1 All India Radio has more than 200 Studio Setups across its network. These Studio setups are already partially digitized. Recording & Playback are already being done in digital mode. It is planned to provide Digital Production Console at 33 AIR Stations where it is planned to set up a Visual Studio.

1.2 Under this project, Supply of Digital Production Consoles are proposed to be done at 33 Akashvani Stations. List of stations, where these Digital Production Consoles are to be provided , is given in Annexure-IA **.**

1.3 The Digital Production Consoles, as per list in Annexure-IB, shall be supplied to respective Zonal office.

2. Scope of Project

2.1 The Scope of this tender is for supply of Digital Production Console at respective Zonal Offices as per quantity mentioned in Annexure- IB.

2.2 The supply of Digital Production Console shall be completed **within 6 months** after the placement of firm order.

2.3 Features of Consoles & Audio Specifications of consoles are given in the Clause **1 &** 2 **of section II**I.

2.4 All the required cables, patch cords etc. required for making the consoles fully functional will be supplied by the tenderer.

2.5 In case, consoles have any non-standard connectors (other than XLR, D Type & Ethernet), necessary mating connectors shall be provided.

3. Documents to be submitted with Tender Document

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

3.1 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.

3.2 In addition to above, a separate point by point compliance statement duly signed by the bidder in respect of all the points laid down in the specifications for all the equipment/item(s) should also be submitted along with the bid by the bidder

3.3 Detailed printed literature of Consoles giving complete details of features and performance data on non-returnable basis to facilitate the technical evaluation.

3.4 Back to Back Support Commitment from OEM of Console for the period of five Years.

3.5 A copy of un-priced Bill of Material (BOM) indicating make, model no. , complete configuration details of offered hardware shall be quoted clearly.

3.6 Documents in support of the offered console, having been deployed in broadcasting organization.

3.7 Bidder shall provide Manufacturer's Authorization Certificate for Digital Production Console.

3.8

4. Tender Evaluation

4.1 The tender shall be technically evaluated on the basis of conformity of bid to Technical specifications.

4.2 Technical evaluation shall be done on the basis of compliance statement, customer reference certificates, technical literature related to quoted products and demonstration of functioning of consoles if required.

4.3 The bids fully meeting technical specifications shall be considered technically fit.

5. Pre-Dispatch Inspection & Supply

5.1 All the Hardware would be inspected before dispatch by indenter. The pre-dispatch inspection shall be done by authorized representatives of All India Radio at OEM's / supplier's premises before shipment.

5.2 An Acceptance Test Procedure (ATP) should be prepared by the tenderer and got approved from the indenter after the firm order is placed.

5.3 The tenderer will give a notice in writing to the indenter 2 weeks before the commencement of inspection.

5.4 The tenderer shall provide all equipment, materials and manpower as may be required for performing various tests as per ATP. In case of inspection outside Delhi, the expenses on air travel, and accommodation and daily allowances for AIR's inspecting officers would be borne by All India Radio.

5.5 Consoles should be fully configurable. Before PDI all the consoles shall be configured by vendors/OEM as per AIR requirement.

5.6 Pre-dispatch inspection would comprise complete testing including functional tests and various measurements of 10% of the equipment. Rest of the equipment shall be accepted on the basis of OEM Test Certificate in respect of measurement taken on the equipment.

6. INSTRUCTION MANUAL

One set of Maintenance/operational manuals of each hardware from OEM should be provided to each station. A softcopy of all manuals on CD/DVD ROM Media shall also be provided to each station, zonal office, AIR Directorate & NABM(T).

7. Warranty & Maintenance

7.1 The Consoles shall be warranted for trouble free operation for a minimum period of five years from the date of Supply.

7.2 In case of failure of any equipment or its sub module, the tenderer will send a replacement part to station. The station will replace the faulty part and test the whole equipment. The faulty part shall be sent back to tenderer at tenderer's cost after rectification of fault.

7.3 However, if it is not possible to rectify the fault remotely or by replacement of module, Onsite support for Replacement / servicing / debugging of software/ reinstallation/ reconfiguring of software etc. should be provided by tenderer free of cost.

7.4 No separate charges will be paid for visit of engineers for attending to faults and repairs or supply of spare parts.

7.5 The bidder will have to provide 99% of uptime at each station during the warranty period.

7.6 A Standard Operating Procedure (SOP) for rectification of faults shall be proposed by bidder as part of tender document to meet the 99% of uptime. The SOP shall be finalized by AIR in consultation with tenderer.

7.7 Tenderer will provide checklists of maintenance actions to be performed on daily, weekly and monthly basis. Tenderer will also extend assistance / help

to AIR in issue of Guidelines /application note / procedure etc for administration & maintenance of the system from time to time.

8.0 Delivery Period: 6 Monthths from the issue of the purchase order**.**

SECTION-II : BILL OF MATERIAL

S. No.	Item	Quantity	Units	Remarks
Equipment				
1.	**Digital Production Console** Spec. Ref. : Section-III-Clause 1	33	Nos	Zone-wise List at Annexure-IB

SECTION-III : TECHNICAL SPECIFICATIONS

1. FEATURES OF CONSOLES

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.1	**General Features of Consoles**			
1.1.1	The console should be ergonomically designed professional product and suitable for reliable operation on 24x7x365 basis working.			
1.1.2	It should be housed in rust-proof pre-painted cabinet/Anodized Metal cabinet.			
1.1.3	The console may be either self-contained or the main electronics portion may be in separate 19-inch rack mountable unit. However the operational part (like Faders, Switches, knob & Level Display etc) of the console should be suitable for Tabletop mounting			
1.1.4	The layout of modules / parts / components in the console should 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 should be sturdy			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
	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. should be appropriately located on the control surface of the console			
1.1.8	All selection points on the console surface should have clear illuminated status indication or adjacent display for easy understanding			
1.1.9	Status Indications should 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 will 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 should be long–throw (100 mm) and shall be of reputed make			
1.1.12	The console should be totally self-contained and should 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 should function as standalone device without being connected to any computer/Laptop. Various operational features like channel routing, mix-minus, phantom ON/OFF, EQ, Gain, panning etc shall be available on console surface.			
1.1.13	It should be possible to save & recall the configuration settings of console			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
	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 35º C Operating Humidity: Up to 80% 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 should be digital and entire switching shall be through solid-state digital switches.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.2.5	All digital inputs and outputs should conform to AES3-1992 signal format.			
1.2.6	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 converted to default sampling rate.			
1.2.7	The console should have Internal Digital reference signal. Provision should also exist to synchronize the console from an external Digital reference signal			
1.3	**Audio Inputs**			
1.3.1	Consoles should accept the Mono Mike, Stereo Line (Analogue) & Digital Audio Inputs.			
1.3.2	The microphone inputs should be available on XLR connectors.			
1.3.3	The Analogue line level inputs and outputs & Digital AES inputs & outputs shall be balanced. These should be available on balanced 3-pin XLR or on 'D' type connector or on RJ 45 connectors.			
1.3.4	Consoles should have at least 8 Mono Mike Inputs .			
1.3.5	Consoles should have 4 (Four) Stereo/8 (Eight Mono) Line Inputs.			
1.3.6	Consoles should have 4 (Four) AES Digital Line (Stereo) Inputs.			
1.3.7	It should be possible to assign any Audio input source to any input Fader without any change in cabling.			
1.3.8	Each of the Mono Mike input should 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.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.3.9	It should be possible to reverse the Phase of each of the Mike input source.			
1.3.10	It should be possible to route the Microphone input to Stereo Outputs using Pan Control on fader surface.			
1.3.11	It should be possible to re-balance the Stereo Analogue input to Stereo Outputs using Balance Control on fader surface.			
1.3.12	Digital Audio Input signal with sampling rates of 44.1 KHz, 48 KHz, 96 kHz and Bit rate of 16/24 shall be accepted.			
1.3.13	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.			
1.4	**Features of Input Faders**			
1.4.1	Each Fader shall have Selection for routing/assigning any of the input to any of the four output program bus.			
1.4.2	Each fader should fade in from infinity to zero to provide nominal output with minimum 10dB reserve gain.			
1.4.3	Each Fader should have Fader on/off switch for switching on or off selection of the input source.			
1.4.4	Each Fader should have facility of LCD display where Name of input Source can be displayed.			
1.4.5	Inputs should be routed to any Faders using Matrix Router. It should be possible to select any input on any Fader. Routing of any Input to any fader should be possible using configuration software			
1.4.6	Consoles should have minimum 12 Faders			
1.4.7	In case, the frame size (meeting the requirement of numbers of faders) is			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
	not exactly matching the requirement of input faders, higher frame size shall be offered.			
1.5	**Audio Output (Logical/Bus)**			
1.5.1	Consoles should provide four independent Audio Outputs after mixing various input sources as per various fader configurations selected by user			
1.5.2	Consoles should provide at least two independent mix-minus bus outputs (mono) for at least two input sources Accordingly, provision should exist in at least two faders for mix-minus 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 should have 4 (Four) AES-3 Digital Line (Stereo) physical Outputs.			
1.6.2	All Consoles should have 4 (Four) stereo /8 (Eight) Mono Analog Stereo Line physical.			
1.6.3	It should be possible to route any of Logical/Bus outputs to any physical Audio output.			
1.7	**Audio over IP**			
1.7.1	Console should support Audio over IP using AES67(Dante/ Revenna).			
1.7.3	Each 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.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.7.4	Various inter Studio outputs like Talkback, Console Outputs etc. shall travel between various Studios (MP Studio, Transmission Room & Control Room) over Audio Over IP.			
1.7.5	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) should 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 should 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 should not be muted by activation of microphones.			
1.9	**Talkback**			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.9.1	Talk-Back facility with two other consoles installed in other rooms should 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 one pair of LED/LCD Level Meters should be available to monitor the level of any of the output buses.			
1.10.2	These Meters should show Audio Level (Separately for Left & Right of Stereo Audio Signal) in internationally recognized format i.e. PPM or VU.			
1.12	**Signaling and Warning Lights**			
1.12.1	Consoles should have sufficient GPIO/Relays which should operate on the following conditions i) When any of Microphones installed in Recording studio is active ii) When any of Microphone installed in Recording Booth (where Console is installed) is active. iii) When ON-AIR signal from Control Room is active. iv) When any of the above three conditions is true. By operation of these GPIO/Relay, it should be possible to glow warning Lamps.			
1.13	**Power Supply**			
1.13.1	The console shall work on 230V ± 10%, 48-52 Hz single phase A.C. Supply.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.13.2	The power supply unit of the console should 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.			

2. Audio Specifications of Consoles

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
2.1	**Mono Mike Inputs**			
2.1.1	**Input Impedance :** ≥ 1 K ohms balanced.			
2.1.2	**Mic Gain Range :** 20 to 60 dB (preset) ± 10 dB(User)			
2.1.3	**Mic/Line Input Impedance :**≥ 3 K ohms (electronically balanced)			
2.1.4	**Gain Adjusment Range:** -10 to +60 dB(Preset) ± 10 dB (User)			
2.2	**Stereo Line (Analogue) Inputs**			
2.2.1	**Input Impedance :**≥ 10 K ohms (electronically balanced)			
2.2.2	**Nominal Input Level :**0 dBu			
2.2.3	**Maximum Input Level at 0dB Gain :** 15 dBu of more			
2.2.4	**Gain Adjusment Range:** -10 to +20 dB(Preset) ± 10 dB (User)			
2.3	**Digital Inputs**			
2.3.1	**Level Reference :** 0 dBFS digital = + 15 dBu Analogue (0 dBu = - 15 dBFS)			
2.3.2	**Signal Format :**AES-3 (AES/EBU)			
2.3.3	**Input Impedance :**110 ohm Balanced			
2.3.4	**AES input Compliance :**24 bit with Selectable sample rate conversion, 44.1 kHz to 96 kHz input (Sample rate Capable)			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
2.3.5	**Internal Sampling Rate :**48 kHz			
2.3.6	**A/D Conversion :**24 bit or better			
2.4	**Analogue Outputs**			
2.4.1	**Output (Source) Impedance :**≤ 60 ohms balanced			
2.4.2	**Output load Impedance :**600 ohm			
2.4.3	**Nominal Output Level :0** dBu			
2.4.4	**Maximum Output Level : ≥**15 dBu			
2.5	**Digital Outputs**			
2.5.1	**Level Reference :**0 dBFS digital = + 15 dBu analogue (0 dBu = - 15 dBFS)			
2.5.2	**Signal Format :**AES-3 (AES/EBU)			
2.5.3	**Output Impedance :**110 ohm Balanced			
2.5.4	**AES3 Output Compliance :**24 bit			
2.5.5	**Output Sampling Rate :**48 kHz			
2.5.6	**D/A Conversion :**24 bit			
2.6	**Frequency Response**			
2.6.1	Mike input of -35 dBu and Console Analogue outputs of +0 dBu/Console Digital Outputs of -15dBFS in the frequency range of 20 Hz to 20 KHz :within ±0.5 dB			
2.6.2	Analogue input of +0dBu/ Digital input of -15dBFS and Console Analogue Outputs of +0 dBu/ Console Digital Outputs of -15dBFS in the frequency range of 20 Hz to 20 KHz : within ±0.5 dB			
2.7	**Total Harmonic Distortion+Noise**			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
2.7.1	Mike input of -60 dBu and Console Analogue Output of +0 in frequency Band of and fader at 0 dB and with 80 Khz Low Pass filter :< 0.3%			
2.7.2	Analogue Line Input of +0 dBu and Console Analog Output of +0 dBu /Digital Output of -15 dBFS at 20 Hz to 20 Khz and fader at 0 dB with 80 Khz Low Pass filter :**< 0.02%**			
2.7.3	Digital Input of -15 dBFS and Console Analog Output of 0dBu in frequency Band of 20 Hz to 20 kHz and fader at 0 dB with 80 Khz Low Pass filter **:< .03%**			
2.7.4	Digital Input of 0 dBFS and Console Digital Output of 0 dBFS in frequency Band of 20 Hz to 20 kHz and fader at 0 dB with 80 Khz Low Pass filter **:< .02%**			
2.8	**Equivalent Input Noise Level and Signal to Noise Ratio**			
2.8.1	Equivalent input noise for mike Input with Mike input level of -60 dBu and Analogue output Level of 0 dBu in frequency band 20 Hz-20 kHz. :< - 124 dBu			
2.8.2	Signal to Noise Ratio for Line Channel with Analogue Line input level of 0 dBu and Analogue output Level of 0 dBu at 0dB Gain, fader at 0 dB 150Ω Source 20 Hz-20 kHz :<- 80 dB			
2.9	**Stereo Separation & Inter Channel Cross Talk**			
2.9.1	Left-Right Crosstalk with Analogue input of Level +15 dBu and Console Analog Output of +15 dBu and the measurement will be taken on 20Hz, 1 KHz and 20 KHz : <-80dB			
2.9.2	Inter-Channel cross-talk with Analogue input Level of +15dBu and Console Analog Output of +15 dBu and the measurement will be taken on 20Hz, 1 KHz and 20 KHz :<- 90 db			

Annexure-I(A)

Station-wise Requirement of Digital Production Consoles (Under BIND Scheme for Setting Up Visual Studio at 33 AIR Station)

Sno	Station	State	ZONE	Digital Production Console
1	Patna	Bihar	EZ	1
2	Ranchi	Jharkhand	EZ	1
3	Cuttack,	Odisha	EZ	1
4	Kolkata,	West Bengal	EZ	1
5	Itanagar	Arunachal Pradesh	NEZ	1
6	Guwahati	Assam	NEZ	1
7	Imphal	Manipur	NEZ	1
8	Shillong	Meghalaya	NEZ	1
9	Aizawl	Miozoram	NEZ	1
10	Kohima	Nagaland	NEZ	1
11	Gangtok	Sikkim	NEZ	1
12	Agartala	Tripura	NEZ	1
13	Chandigarh	Chandigarh	NZ	1
14	Delhi	Delhi	NZ	1
15	Rohtak	Haryana	NZ	1
16	Shimla	Himachal Pradesh	NZ	1
17	Srinagar	J&K	NZ	1
18	Leh	Laddakh	NZ	1

19	Jallandhar	Punjab	NZ	1
20	Jaipur	Rajasthan	NZ	1
21	Lucknow	Uttar Pradesh	NZ	1
22	Dehradun	Uttarakhand	NZ	1
23	Port Blair	A&N	SZ	1
24	Vijayawada	Andhra Pradesh	SZ	1
25	Bangalore	Karnataka	SZ	1
26	Thiruvananthapuram,	Kerala	SZ	1
27	Chennai	Tamilnadu	SZ	1
28	Hyderabad	Telangana	SZ	1
29	Raipur	Chhatisgarh	WZ	1
30	Panaji	Goa	WZ	1
31	Ahmedabad	Gujrat	WZ	1
32	Bhopal	Madhya Pradesh	WZ	1
33	Mumbai(BH)	Maharastra	WZ	1
	Total			33

Annexure-I(B)

List of Consignee

S No.	Consignee	Digital Production Console	Remarks
1	Addl. Director General(BO) AIR & DD, EZ	4	
2	Addl. Director General(BO) AIR & DD, NEZ	8	
3	Addl. Director General(BO) AIR & DD,NZ	10	
4	Addl. Director General(BO) AIR & DD, SZ	6	
5	Addl. Director General(BO) AIR & DD, WZ	5	
Total		**33**	