File No. AIR-Co/2V/3/2023-24/Instt./DigitalConsoles

प्रसार भारती
(भारत का लोक सेवा प्रसारक)
कार्यालय: अपर महानिदेशक अभियन्ता (उ.क्षे.)
आकाशवाणी एवं दूरदर्शन
आठवां तल, सूचना भवन, सी.जी.ओ. कॉम्प्लेक्स, नई दिल्ली 110003

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BY MAIL

दिनॉक: 15.04.2024

Subject: Draft Tender for Procurement of Switching Console at Jhansi, Kurukshetra, Patiala, Bhathinda, Leh, Allahabad, Hissar

1. Bidders are requested to offer their feedback on the **Draft Tender** Specification of the upcoming tender.
2. Bidders are requested to provide information about percentage of Make in India content in the proposed requirement as per latest and updated DPIIT guidelines.
3. Bidders are requested to submit budgetary quote of the proposed requirements.
4. Bidders are requested to submit the above detail on or before due date by e-mail to dirpur@gmail.com or at following address.

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Deputy Director (Engg.)
Room No. 899-C,
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Specification for: Draft Tender for Supply, of Switching Console at Jhansi, Kurukshetra, Patiala, Bhathinda, Leh, Allahabad, Hissar

Due Date to offer Comments: 22.04.2024

Enclosed:

1. Budgetary Quotation form for Supply, of Switching Console at Jhansi, Kurukshetra, Patiala, Bhathinda, Leh, Allahabad, Hissar.
2. Specification for Supply, of Switching Console at Jhansi, Kurukshetra, Patiala, Bhathinda, Leh, Allahabad, Hissar.

15/04/2024

LOKENDRA KUMAR
Deputy Director (Engg.)
For Add. Director General (NZ)

Bill of material for supply of Switching Console at Jhansi, Kurukshetra, Hisar, Patiala, Bhatinda, Leh, Allahabad

Sr. No.	Description of work	HSN/SAC Code	Make	Model	Quantity	Unit rate	Total price excluding GST/IGST	GST/IGST (%)	Total Amount of GST/IGST	Total Amount including GST/IGST
	Switching Console Spec. Ref. : Section- III-Clause 1 Station – Jhansi, Kurukshetra, Hisar, Patiala, Bhatinda, Leh, Allahabad (one each)				7 Nos.					

NOTE:- Specs related to Audio Switching Console to be considered

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 Studio Consoles under 12th Plan

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 with Recording & Playback are already being done in digital mode. It is planned to completely digitize the whole studio by introducing Digital Consoles in the circuit.

1.2 Under this project, Supply of Digital consoles are proposed to be done at 29 Stations & two NABMs. List of stations, Numbers & type of consoles to be provided at each of these stations is available at Annexure-IA & Annexure-IC.

1.3 Consoles as per list at 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 Transmission, Switching and dubbing consoles at 29 AIR Stations & NABMs (List of stations at Annexure-IA & IC).

2.2 In addition to this, Consoles as per list at Annexure-IB shall be supplied to respective Zonal office.

2.3 Features of Consoles & Audio Specifications of consoles are given in the Clause **1 & 2 of section III**. **Clause 3 & Clause 4 of section III** deal with specifications of Gigabit Ethernet Switch & Digital Clocks.

2.4 Digital Transmission Console shall be installed in Transmission/Live Studio). Digital Switching Console shall be installed in Control Room. Digital dubbing Console shall be installed in Recording Studio.

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

2.6 Mating connectors for all the ports available in console shall also be supplied. Mating connectors shall be of same brand as used in the console or of Neutrik/Swithcraft/Amphenol/ ADC brand.

(K.N. Pandey)	(Vivek Kumar)	(Jitender Pruthi)	(Aditya Chaturvedi)
AE(SD)	ADE(SD)	DE(SD)	DDG-E(NZ)

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 1-4 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 for the offered console, having been deployed in broadcasting organizations.

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. Vendors may be asked to demonstrate the 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 All the consoles shall be configured as per AIR requirement before PDI.

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.

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 compact 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 main electronics portion may be in separate 19-inch rack mountable unit. The Operational part (Containing Faders, Switches & Level Display etc) of console i.e console Fader surface should be suitable for Tabletop mounting. However, all the parts of console should be from same OEM.			
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 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			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
	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) conductive plastic type 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 with appropriate interface screen & control port etc for future reloading by authorized user/administrator.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
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	Console Fader surface should Display Time Clock. Clock should be able to synchronize with NTP Server.			
1.1.16	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.			
1.1.17	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			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
	shall be through solid-state digital switches.			
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 sample rate 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	Various Consoles should have Mono Mike Inputs as follows: Transmission Consoles 4 Switching Consoles 4 Dubbing Consoles 8			
1.3.5	All Consoles should have 4 (Four) Stereo/8 (Eight Mono) Line Inputs.			
1.3.6	Various Consoles should have 4 (Four) AES Digital Line (Stereo) Inputs.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
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.			
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			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
	Fader. Routing of any Input to any fader should be possible using console surface or configuration software			
1.4.6	Various Consoles should have Faders as follows: Transmission Consoles 10 Switching Consoles 6 Dubbing Consoles 12			
1.4.7	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.			
1.5	**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.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
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)**			
1.7.1	Console should support Audio over IP using AES67.			
1.7.2	Console should have two (redundant) Audio Over IP ports.			
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.			
1.7.4	Various inter Studio outputs like Talkback, Console Outputs Outputs etc. shall travel between various Studios (MP Studio, Transmission Room & Control Room) over Audio Over IP.			
1.7.5	Ii should be possible to inter-connect all studios by running two 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.			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
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**			
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	Two Pairs of LCD/LED Level meters should be available to monitor the level on any of the output buses. One Pair of meters should be dedicated for Main Output and other pair should be selectable for other outputs.			
1.10.2	These Meters should show Audio Level (Separately for Left & Right of Stereo Audio Signal) in DBFS Scale.			
1.11	**Ethernet Port**			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.11.1	Console should have Ethernet port for remote control & configuration purpose.			
1.11.2	By using this Ethernet port, console should support virtual & physical GPIO for signaling.			
1.11.3	Necessary software License for Fader start operation using GPIO over Ethernet shall be provided.			
1.12	**Signaling and Warning Lights**			
1.12.1	Console shall use either Physical GPIO ports or GPIO over Ethernet for configuring fader start/Stop operation signals as well as intimation of ON-AIR /Ready Signal to Studio/Control Room.			
1.12.2	Console installed in Control Room should automatically generate ON-AIR signal for Console (installed in Recording/Transmission Studio) when audio from that console is being Live Broadcast.			
1.12.3	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.			

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Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.13	**Power Supply**			
1.13.1	The console shall work on 230V ± 10%, 48-52 Hz single phase A.C. Supply.			
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 and shall not incorporate any cooling fan.			
1.14	**Tone Generator**			
1.14.1	A 1 kHz Tone Generator for feeding Tone shall be available in the **Switching console**. In case, same is not available, a separate Tone Generator shall be provided.			

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	**Input Level range :** Adjustable -60 dBu to -30 dBu (Ref. 0 dBu = 0.775V rms)			
2.1.3	**Mic/Line Input Impedance :** ≥ 3 K ohms balanced			
2.2	**Stereo Line (Analogue) Inputs**			
2.2.1	**Input Impedance :** ≥ 10 K ohms balanced			
2.2.2	**Nominal Input Level :** +4 dBu			
2.2.3	**Input Headroom :** 20 dB above nominal input.			
2.3	**Digital Inputs**			
2.3.1	**Level Reference :** 0 dBFS digital = + 24 dBu analogue (+ 4 dBu = - 20 dBFS)			
2.3.2	**Signal Format :** AES-3 (AES/EBU)			

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Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
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)			
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 :** + 4dBu			
2.4.4	**Maximum Output Level :** 24±1 dBu.			
2.5	**Digital Outputs**			
2.5.1	**Level Reference :** 0 dBFS digital = + 24 dBu analogue (+ 4 dBu = - 20 dBFS)			
2.5.2	**Signal Format :** AES-3 (AES/EBU)			
2.5.3	**Output Impedance :** 110 ohm Balanced			

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Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
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 +4 dBu/Console Digital Outputs of -20dBFS in the frequency range of 20 Hz to 20 KHz :** within ±0.5 dB			
2.6.2	**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			
2.7	**Total Harmonic Distortion+Noise**			
2.7.1	**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%			
2.7.2	**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%			
2.7.3	**Digital Input of -20 dBFS and Console Analog Output of +4 dBu in frequency Band of 20 Hz to 20 kHz and measurement with 80 Khz Low Pass filter :** < .02%			

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
2.7.4	**Digital Input of -1 dBFS and Console Digital Output of -1 dBFS in frequency Band of 20 Hz to 20 kHz and measurement 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 +4 dBu and measurement band limited to 20 Hz-20 kHz. :** < - 124 dBu			
2.8.2	**Signal to Noise Ratio for Line 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			
2.9	**Stereo Separation & Inter Channel Cross Talk**			
2.9.1	**Stereo Separation (Between L&R of same Output) with Analogue input of Level +23 dBu and Console Analog Output of +23 dBu and the measurement will be taken on 20Hz, 1 KHz and 20 KHz :** >60dB			
2.9.2	**Inter-Channel cross-talk with Analogue input Level of +23 dBu and Console Analog Output of +23 dBu and the measurement will be taken on 20Hz, 1 KHz and 20 KHz :** > 90 db			

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

Amedment to Technical Specification for Studio Consoles under 12th Plan

The following amendments to Technical specification (**SSE- 6048/1**) are made. The changes in specs are highlighted:

1. Para 1.12.1 of Section III may be read as follows:

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
1.12.1	Console shall use **both** Physical GPIO ports **and** GPIO over Ethernet for configuring fader start/Stop operation signals as well as intimation of ON-AIR /Ready Signal to Studio/Control Room.			

2. Para 3.1 of section III may be read as follows:

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
3.1	Suitable Redundant Gigabit Managed Ethernet Switches shall be provided for interconnecting Consoles using Audio over IP Ports. **Gigabit Ethernet switch shall have at least 16 Ports.**			

27.08.2020
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27/08/20
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विवेक कुमार / VIVEK KUMAR
सहायक निदेशक (अभि.) / Assistant Director (E)

27.08.2020
(Jitender Pruthi)
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जितेन्द्र परूथी/Jitender Pruthi
उप महानिदेशक (अभि.)/Dy. Director General (Engg.)

— Sd —
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Supply of Studio Consoles under 12th Plan

Amendment Specification No. SSE- 6048/1
Dated: 27-Aug-2020

3. Digital Clocks (Automatic Time Synchronising)

Sr. No	Specifications	Compliance	Reasons for Deviations (if any)	Details
4.1	Clocks should have suitable LCD Alphanumeric Display/**LCD 7 segment Display for use in AIR Studio.**			
4.4	**Time Source inputs :** 1. GPS with Precision of at least +1ms 2. NTP with Precision of at least +/- 1 ms **Clocks being supplied may consist of a master time Distributor and two slave clocks or one master and one Slave or two master clocks.**			

27-08-2020
(K.N. Pandey)
AE(SD)
के० एन० पाण्डेय/K. N. PANDEY
सहायक अभियन्ता/Assistant Engineer

27/08/20
(Vivek Kumar)
ADE(SD)
विवेक कुमार/VIVEK KUMAR
सहायक निदेशक (अभि.)/Assistant Director (E)

27.08.2020
(Jitender Pruthi)
DE(SD)
जितेन्द्र परूथी/Jitender Pruthi
उप महानिदेशक (अभि.)/Dy. Director General (Engg.)

—Sd—
(Aditya Chaturvedi)
DDG-E(NZ)