

I/44429/2024

File No. J-16026/60/2024-ENGG - AIR DELHI

प्रसार भारती/PRASAR BHARATI

भारत का लोक प्रसारक/India's Public Service Broadcaster

आकाशवाणी, दिल्ली/Akashvani, Delhi

नई दिल्ली/New Delhi-110001.

सं0/No. J-16026/60/2024-ENGG - AIR DELHI

दिनांक:Dated-30.08.2024

Subject: Publication of Draft Technical Specification of Portable IP Audio codec set for live

Radio Broadcasting at Akashvani, Delhi for seeking Vendors/OEMs feedback and budgetary quote.

1. Draft Technical Specification for Portable IP Audio Codec set for live Broadcasting at 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. Vendors/OEMs are also requested to provide percentage of local content in the offered equipment.
3. The budgetary price offered for Portable IP Audio Codec set for live Broadcasting at Akashvani, Delhi with associated equipment may also be submitted.
4. All these information may be provided by E-mail to ddgenbh@prasarbharati.gov.in on or before 15.09.2024.

(JITENDER PRUTHI)
(Dy. Director General (Engg.))

Prasar Bharati
(India's Public Service Broadcaster)
Akashvani Delhi

Technical Specification for Portable IP Audio codec set for live Radio Broadcasting

1. Scope of Work

Akashvani Delhi, a National Public broadcaster has a large technical setup and being used on 24x7 bases for 40 numbers of Broadcast Studios, 26 Dubbing Studios, News Room, etc. to produce contents and transmit National News and programs on multiplatform's. We wish to introduce professional grade IP Codec for transporting live Audio feed from OB Spot (Remote site) to Studio center with Broadcast quality Audio.

2. General Requirements

- 2.1 Only professional and broadcast quality products manufactured by reputed companies in the broadcast field shall be offered.
- 2.2 The quoted model should be field proven and in use by leading broadcasters. The bidder should essentially submit the list of the broadcasters to whom the quoted model has been supplied. The tenders without the proper user list shall liable to be rejected out rightly.
- 2.3 The bidder must submit the following documents along with the tender.
 - 2.3.1 A point-to-point compliance statement as highlighting deviations, if any, on all the clauses of specification duly signed from OEM. Actual performance figures should be quoted under remarks column.
 - 2.3.2 Detailed technical literature of the offered equipment/ item giving complete features, electrical and mechanical data. The figures so mentioned should be supported by record of these in the technical literature enclosed with the tender and reference to the page number of enclosed literature for all features and technical specifications should be mentioned in the relevant column.
 - 2.3.3 The quote should be either from the OEM or the firms dealing in the similar field and authorized by the OEM.
 - 2.3.4 Escalation matrix with resolution time details for technical support during Warranty period should be enclosed with the tender.
- 2.4 Manufacturer Authorization (MAF) which includes bid number. The quoted OEM should not have been blacklisted/debarred by any State Government, Central Government, PSU etc. in the last five years.
- 2.5 OEM Support (TAC) Presence in India.

I/44429/2024

- 2.6 The system to be supplied should not be declared end of life within 05 years of supply and supports & regular firmware/ security patch upgrades will be available up to 05 years period.

3. Essential Requirements for Portable Unit

- 3.1 The Portable IP audio codec should have at Least 3 balanced Microphone Input.
- 3.2 The Portable IP audio codec should have selectable Stereo Analog & AES Inputs.
- 3.3 The offered unit should be at least 3 GPIOs.
- 3.4 The quoted portable IP audio codec should be have dual built-in 3G/4G/LTE (5G ready) GSM Modules and Dual Ethernet ports for Streaming.
- 3.5 The quoted portable IP audio codec should have 1 Wi-Fi modules.
- 3.6 The quoted portable IP audio codec should have Bluetooth Module.
- 3.7 The quoted portable IP audio codec should be able to auto switch to the fastest network available in different modules.
- 3.8 The quoted portable IP audio codec should have touch operated Display panel for ease of operation.
- 3.9 The quoted portable IP audio codec should have built-in Audio mixer with I/O routing Matrix.
- 3.10 The quoted portable IP audio codec should have built-in recorder.
- 3.11 The Portable IP audio codec should have selectable Stereo Analog & AES output.
- 3.12 The Portable IP audio codec should have at least 2 USB slots.
- 3.13 The Portable IP audio codec should have minimum 4 headphone outputs.
- 3.14 The Portable IP audio codec should have provision of direct audio recording facility for at least 10 hours.
- 3.15 The Portable IP audio codec should have dual built-in rechargeable battery with min. 12 hours of operations.
- 3.16 The Portable IP audio codec should have G711/G722, MPEG-1/2 Layer II, MPEG-4 AAC-LC, AAC-LD/ELD, HE-AACv1/v2, Opus, PCM Audio format.
- 3.17 The Portable IP audio codec should have Adaptive buffer size and adaptive bit rate.

4. Technical Specification for Portable Unit

This specification lays down the performance characteristics requirement of Portable IP Audio Codec sets for utilizing outside OB broadcast in duplex mode.

i. Audio Specification:

- a. Mic Inputs : 3 balanced (mono)
- b. Line Inputs : 2 Analog or AES/EBU Stereo
- c. Headphones Outputs : 2 Unbalanced

ii. Connectivity:

- a. Ethernet: 2 Gigabits Ethernet ports for audio stream

I/44429/2024

- b. Wi-Fi 1 Wi-Fi
- c. Cellular: 2 integrated 4G/LTE suitable for India
- d. USB 2 USB port

iii. Encoding & Streaming:

- a. Connection: 2 Independent SIP connections for program
- b. Encoding: Streaming Configurable FEC
MPEG-Layer II, MPEG-4 AAC-LC, AAC-LD/ELD, HE-AACv1/v2, opus, G711/G722,
- c. Redundancy: For all available Ethernet, Wi-Fi & cellular modules
- d. Compliant: ACIP (EBU Tech 3326 & 3368)

iv. General:

- a. Power supply: 12-24 DC Lockable external power supply
- b. Battery: Dual Li-ion Battery with min 6 hour operation
- c. Weight ≤ 3 kg including battery
- d. Operating Temperature: 0-45 degree Celsius

5. Essential Requirements for Dual Channel IP Audio Decoder

- 5.1 The system should be 19-inch Rack mountable.
- 5.2 The system should have dedicated hardware platform with strong EMC resilience and suitable for high power transmitter area.
- 5.3 System should have fan-less design, low-power consumption.
- 5.4 System should have lightning protected network interfaces.
- 5.5 System should have 3 levels of backup with selectable source including IP stream: RTP or Shout cast/Ice cast on any of the 2 network ports, Physical input (analog or AES/EBU) & Sound file or .m3u playlist on SDHC card.
- 5.6 System should have configurable backup switching criteria. (IP stream loss/recovery duration).
- 5.7 System should have alarm upon Silence detection on audio inputs.
- 5.8 System should have Simultaneous encoding and decoding at the same audio format or different formats.
- 5.9 System should have dual redundant streaming of unicast, multicast with time diversity up to 1 sec of delay on the redundant stream.
- 5.10 System should have real time measurement of network path quality for main and backup streams.
- 5.11 System should have management of network conditions like: jitter, lost packets, duplicated packets, disordered packets.
- 5.12 System should have Selectable FECs as per RFC2733 with +10%, +20%, +33%, +50%, +100%.
- 5.13 System should have AAC error concealment implementation.
- 5.14 System should have hardware by-pass of inputs to outputs in case of power failure.
- 5.15 System should have at least 2 Ethercon RJ45 IP ports which can be used for separate management traffic and IP audio streaming & Dual port redundant streaming.

- 5.16 System should have Unicast, mutli-unicast, multicast, multi-multicast (IGMPv3).
- 5.17 System should have Control, monitoring, alarming trough SNMP (SET, GET, Traps) with MIB for supervisor monitoring.
- 5.18 System should have Alarms activable on GPOs, SNMP traps, and log traces.
- 5.19 System should generate log file in case of power failure.
- 5.20 System should have secure WEB connection (https) and FTP connections.
- 5.21 System should have WEB user rights management: Read Only, User, Administrator & facility to Save/load full codec configuration on SDHC card.

6. Technical Specification for Dual Channel IP Audio Decoder

This specification lays down the performance characteristics requirement of Portable IP Audio Codec sets receiving the live Audio feed at Akashvani Studio in duplex mode.

i. Audio Specification:

- a. Analog line inputs : 2 balanced (mono)
- b. Maximum input level/impedance : +24 dBu / > 10 k Ω
- c. Digital input : 1 stereo AES/EBU
- d. Analog input gain : 0 dB to +18 dB
- e. Dynamic range 0 dBu (A-weighted) : > 107 dB
- f. THD + noise at 1 kHz : > -90 dB
- g. Analog channel cross talk at 1 kHz : < -110 dB
- h. Frequency response : 20 Hz-20 kHz +/- 0.3 dB
- i. Analog outputs : 2 balanced mono outputs
- j. Maximum output level : + 24 dBu
- k. Impedance : < 50 Ω
- l. Sampling frequencies : 22 kHz up to 96 kHz
- m. Signal-to-noise ratio : > 105 dB
- n. Power input : 100 – 250 VAC
- o. Temp / humidity (non-condensing) : 0°C – 50°C / 0% – 95%
- p. weight : 3.5 kg or less

7. ACCESSORIES:

I/44429/2024

All the essential accessories required to complete the system should be offered by the bidder. The bidder should certify the completeness of the system in all respect. All the optional items should be quoted separately. The bidder must provide enough details about such optional items to decide its utility.

6. DOCUMENTATION :

One set of printed technical and operation & maintenance manuals for all the offered products are to be provided on non-returnable basis along with the tender to facilitate the technical evaluation, otherwise the tender is liable to be ignored. The successful bidder will have to supply one set of printed operation, service and maintenance manuals with respect to each item.

7. GUARANTEE:

- the
this
- a) The equipment should be guaranteed for one years of trouble free operation from date of supply. In case of equipment failure including software and hardware within this period, the same shall be rectified or replaced free of cost onsite.
 - b) The guarantee should cover all hardware, software and modules of the complete system.

8. ENCLOSURES:

The bidder must necessarily submit the following enclosures along with the technical bid:

- a) Compliance statement with respect to all the points of the specifications duly signed by the OEM.
- b) The reference to the page number of enclosed literature for all features and technical specifications should be essentially mentioned in the relevant column of the compliance statement from the OEM.
- c) Certificate of Authorization from the OEM should have to enclose with tender.
- c) Technical manuals / detailed technical literature/catalogues for all the offered products for substantiating the model no. and technical specifications.
- d) Model specific User list of the offered product.
- e) Any other document mentioned elsewhere in the tender document.

The tender is liable to be rejected in the absence of the above enclosures with the sole responsibility of the bidder.

.....
.....

I/44429/2024

Appendix

–A

BILL OF MATERIAL

S.No .	Description of Stores	Qty.	Rate per Unit (In figure and words)	Total Price (In figure & Words)
1	Portable IP Audio Codec with required accessories	1		
2	19 inch Rack mount Dual Channel IP Audio Decoder	1		
3	Operation manual/Service & maintenance manual/User Guide/Technical manual etc.	1 Set		