



All India Radio



Specification No: XME-714/07
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Directorate General : All India Radio
Planning & Development Unit

Specification for Audio Processor

1. General requirement/ Scope:

The audio processor shall be a part of the analogue audio input chain to AM Transmitters. The equipment should be capable of processing sound in digital domain for producing very bright, clear and punchy sound providing balance between optimum loudness & high quality with substantial improvement in both speech/spoken words and music quality for high modulation and simultaneously offering protection to transmitter also. The equipment should be fully solid state, self-contained, compact, easy to set up, simple to use, rugged for working 24 x 7x 365 hrs. a year. The necessary factory presets should allow to choose true presence & impact for announcements or news/talk and telephone voices. Music programme should have real bass, with punch & warmth.

2. Design & General Configuration :

The equipment should have:-

- (a) A multi-band processor with compressor & limiter function for optimum loudness & high quality
- (b) Built in digital processing having A/D & D/A conversion with minimum of 18 bit resolution.
- (c) Provision for receiver equalization at low, mid and high frequencies
- (d) Provision for final clipper for protection against peak over modulation
- (e) Provision for transmitter equalization
- (f) Front panel controls/metering
- (g) By pass mode (Features which remain in chain to be indicated by tenderer)
- (h) Should be upgradable to digital input/output in future and select automatically any of the three standard sampling rates of 32, 44.1 and 48 KHz

3 **Technical parameters**

3.0 **Input configuration:-**

- 3.1 No. of input channels : one mono
- 3.2 Impedance : balanced 600 ohms or bridging mode, jumper selectable
- 3.2 Low pass filter : suitable for 4.5Khz & 9.5 KHz cut off
- 3.3 High pass filter : having cut off adjustable from 50 Hz - 100 Hz
- 3.4 Audio Input Level : -20dBu to + 20 dBu
- 3.5 Sensitivity : -20dBu to +20dBu selectable with adjustable control on front panel / software.
- 3.6 Maximum input level : 20dBu

4.0 **Output configuration**

- 4.1 No. of output : 2 Monaural/ (independently variable)
- 4.2 Audio Output Level : 0 to +20 dBu
- 4.3 Maximum out put level : +20dBu
- 4.4 Output Impedance : 600 Ohms balanced/unbalanced

5 **Technical Performance:** (In by pass Mode)

- 5.1 Frequency response : < ±0.5db (High pass 50-100 Hz, low pass 4.5 kHz– 9.5 kHz).
- 5.2 Noise : < - 75 db reference to 100% modulation between 50 Hz to 10 kHz.

- 5.3 Total Harmonic Distortion: < 0.25% at 100% modulation between 50 Hz to 10 KHz.
- 5.4 Gain : - 15 db to + 15 db (Test Mode)
- 5.5 Sine wave Tone : Programmable 30 Hz to 10 kHz 0 – 95% Modulation (Test mode)
- 5.6 Square wave Tone : Programmable 63 Hz to 1 kHz 0 – 50% Modulation (Test mode)

6. ENVIRONMENTAL :

- 6.1 Operating Temperature : 0° to 50°C at nominal operating voltages.
- 6.2 Humidity : 0 to 95% RH, non-condensing.
- 6.3 Storage Temperature Range : -20°C to 60°C
- 6.4 Operating Altitude : 4000M
- 6.5 Protection against RF protection: The equipment shall be provided with adequate shielding so as to perform satisfactorily as per the specification in high RF field of 500 KW MW/SW Transmitter .

7 POWER :

- 7.1 Voltage : 230 V +/-10%, 50 Hz +/-3% ,
- 7.2 Power consumption To be quoted by the tenderer
- 7.3 Connector : IEC, EMI-suppressed. Detachable 3-wire power cord supplied.
- 7.4 safety Standards: ETL listed to UL standards CE.

8 PHYSICAL DIMENSIONS

Mounting : 19’’ rack mount with mounting screws supplied with each.

W x D x H : 400mm x 350mm x 90mm (approx. 2U rack height)

Weight : To be quoted by tenderer

9 GUARANTEE:

The equipment Shall be guaranteed for minimum period of one year from the date of commissioning into service.

10 SPARES:

Essential and recommended spares (Discreet and Modules) shall be quoted separately. If not recommended the same may be specified.

11 INSTRUCTION MANUAL:

Two copies of operating instruction and service manual shall be supplied along with each equipment.

12 ACCESSORIES:

The equipment shall be supplied complete with all standard accessories such as mating XLR connectors for input, output, Remote interface and power supply chord. Any optional item may be quoted separately.

N.B Compliance

Para wise compliance report for all parameters supplemented by leaflets/detailed description wherever required, shall accompany the offer. Offer without para wise compliance is liable to be rejected.

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