

**PARSAR BHARTI  
DIRECTORATE GENERAL: ALL INDIA RADIO  
(PLANNING & DEVELOPMENT UNIT)**

**SPECIFICATION DOCUMENT FOR AUDIO ANALYZER**

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**N.B. : 1. The tenderer should go through all the clauses of these Specifications carefully and should submit clause by clause compliance .**

**2. Tenders without clause by clause compliance are liable to be rejected**

**(R.K.SAINI  
DY. DIRECTOR ENGINEERING (TD)**

## **1. GENERAL:**

The audio analyzer should incorporate latest state of art technology for checking up the performance of high quality broadcast transmitters and studio centers of AIR. The audio generator and the analyzer should be an integral part of the equipment. The equipment should be fully solid state, self contained, compact, easy to set up, simple to use, rugged for using continuously for 24x7 hrs. basis. The equipment should have operationally convenient grouped keys for carrying out fast measurements. It should include "self-test" facility also. The equipment should have auto ranging, scaling, nulling and sweep facilities etc. The equipment shall have USB interface, PC & Printer connectivity to acquire data and measurements from the instrument.

**NB.: 1. Tenderer should clearly mention Make & Model No. of the equipment offered supported by printed technical manual/leaflet.**  
**2. Manufacturers commitment to provide maintenance support (service after sales) in India irrespective of supplier.**

## **2. TECHNICAL SPECIFICATION:**

### **2.1. ANALYZER:**

#### **2.1.1 Analog Inputs:**

1. No. of Channels : Two, XLR connector
2. Input Type & Impedance : Balanced floating, 200, 600 ohm, 100k ohm
3. Analog Voltage measurement Range: 1 $\mu$ v to 100V
4. Common-mode rejection :  $\geq$ 70dB
5. Frequency Range : 20 Hz to 80 KHz

#### **2.1.2 Digital Input:**

1. Input Type & Impedance:
  - (i) Balanced : 110 Ohm, XLR connector
  - (ii) Unbalanced: 75 ohm, BNC connector
2. No. of Channels : Two,
3. Sampling Frequency : 32kHz,44.1KHz,48KHz,96KHz
4. Format : professional / consumer format conforming to To AES3
5. Level : 100mV to 5 V

#### **2.1.3 Measurement Functions:**

1. Noise Measurement RANGE: -90dBu to 0dBu
2. Total Harmonic Distortion (THD)
  - (a) Fundamental Range : 20Hz to 20KHz
  - (b) Accuracy: Harmonics (i) $\leq$ 20 KHz :  $\pm$  1.0 dB  
(ii) Between 20 KHz to 80 KHz:  $\pm$  1.5 dB
3. Inherent distortion : -90dB, 80 kHz, BW
4. Filters : All standard weighting filters selectable.

5. SMPTE (or DIN) Test Signals (IMD):
  - (a) LF sine wave mixed with HF sine wave: 4:1 ratio as per SMPTE and DIN tests
  - (b) Residual IMD :  $\leq 0.001\%$
6. Time domain display:
  - (i) Frequency range : 20 Hz to 80KHz
  - (ii) Accuracy :  $\pm 50$  ppm
7. Phase:
  - (a) Measurement Range :  $\pm 180^\circ$ ,  $+90^\circ/-270^\circ$  or  $-90^\circ/+270^\circ$
  - (b) Frequency range : 20Hz to 20KHz
  - (c) Accuracy :  $\pm 1^\circ$
8. Digital measurements : 24 bit full scale
  - (a) Filter : user selectable

## **2.2 GENERATOR:**

### **2.2.1 Analog Output:**

1. No of Channels: Two XLR connector
2. Output Wave Form: Sine wave, square wave, Triangular wave
3. Frequency Range: 20 Hz to 80KHz
4. Impedance :
  - (i) Balanced, floating: 50ohm , 600 ohm
  - (ii) Unbalanced : 50 ohm;
5. Amplitude Range :
  - (i) Balanced : 300uv to 20V
  - (ii) Unbalanced: 50uv to 10V
6. Frequency accuracy :  $\pm 50$  ppm
7. Level accuracy :  $\pm 0.1$  dB at 1 KHz
8. Frequency response:  $\pm 0.05$ dB, 20Hz to 20KHz
9. Inherent distortion : 0.0025% or less
10. Inherent Noise : -90dB or less

### **2.2.2 Digital output:**

1. No of outputs : 2 nos
2. Digital Audio output : Balanced (110  $\Omega$ ) & Unbalanced(75  $\Omega$ )
3. Audio bits : 8 to 24 bits
4. Sampling Frequency: 32 KHz, 44.1 KHz, 48 KHz, 96 KHz

### **2.3 Mains Supply:**

- (i) Operating Voltage : 230 V AC  $\pm 10\%$ , 50 Hz  $\pm 2$ Hz

### **2.4 Environmental Condition:**

- (i) Operating Temperature : - 10°C to + 55°C
- (ii) Operating Altitude: 3000M
- (iii) Humidity: 95% Non-condensing.

**3. GUARANTEE:**

The equipment shall be guaranteed against manufacturing/design defect ,satisfactory and trouble free operation for a minimum period of one year from the date of receipt by AIR in satisfactory working condition. Supplier must quote for additional comprehensive warrantee for three years.

**4. SPARES:**

Essential and recommended spares (discreet and modules) shall be quoted separately for keeping the instrument in working condition for at least 10 years.

**5. SERVICING FACILITY:**

The tenderer shall specify the repair/service facility available for the equipment in India with address, Phone/Fax nos. etc.

**6. DELIVERY PERIOD:**

Supply of the equipment shall be completed within 6 months from the date of supply order issued.

**7. INSTRUCTION MANUAL:**

Two copies of operating instruction and service manual shall be supplied alongwith each equipment. Four extra copies will be supplied to Director Engg. (Transmitter design Section), P & D Unit, DG: AIR, New-Delhi.

**8. ACCESSORIES:**

**a) Essential Items:** The equipment shall be supplied complete with all essential accessories such as connectors, power supply cord and transportation case of the equipment etc.

**b) Optional Items:** Optional items/accessories shall also be quoted by tenderer.

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