



All India Radio



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

Specification No. XME-712/05

SPECIFICATION OF M.F. FIELD STRENGTH METER

1. **General requirement/ Scope** : This Specification lays down the general, technical and performance parameters requirements of the equipment to be used for measurement of R.F. field strength of AM Transmitter in MW range. The equipment should be simple in operation, fully solid state, portable type, hand held or tripod mount, battery operated with all standard accessories and fully tropicalised in order to ensure guaranteed performance under environmental conditions. It shall conform to international broadcasting measuring equipment standards in all respects.

2. DESIGN AND GENERAL CONFIGURATION

The equipment should have

- 2.1 Digitally synthesized tuning in 1 KHz increments.
- 2.2 Digital display to facilitate various measurements (Field Strength, Date and Time, Bearing (degrees), Distance (km) to station, Latitude & Longitude in GPS Coordinates) in a single instrument
- 2.3 Data acquisition hardware and standard software to enable to collect, analyze and e-distribute field measurement data
- 2.4 Flash memory for Data storage and Retrieval.
- 2.5 Integrated GPS receiver for indicating geographic position of measured places
- 2.6 Auto/Manual calibration operation according to measurement environmental conditions, levels & frequencies and easy to operate.
- 2.7 Shielded Loop Antenna as an integral part.
- 2.8 Demodulator with built in loudspeaker to monitor and record the programme
- 2.9 Built in power source with both chargeable alongwith charger & un-chargeable standard 1.5 volts battery.

3. TECHNICAL Specifications :

Sl. No.	PARAMETERS	SPECIFICATIONS
3.1	Frequency Range	522 KHz to 5.0 MHz
3.2	Minimum frequency step	1.0 kHz.
3.3	Measuring accuracy	$\pm 1\%$
3.4	Field Strength measuring range	30 $\mu\text{v/m}$. to 20 v/m.(29.5 dBuV/m to 146 dBuV/m)
3.5	Residual F/S reading (Without antenna)	< 30 $\mu\text{v/m}$ in 10 V/m field
3.6	Measurement Units	μV ; mV;V;dBu;dBm (referenced to 50 Ω)

3.7	Measurement Band width	4 kHz (6dB)
3.8	Image Rejection Ratio	> 75 dB
3.9	Spurious Rejection	> 75 dB
3.10	Adjacent Channel Rejection	>90 dB at \pm 9 kHz
3.11	IF Frequency	455 Khz.
3.12	Display Mode	Average and peak
3.13	I/O Ports i)Data out put/ Control input jack ii)External RF Calibration jack iii)External RF input jack iv)External RF output jack v)Headphone jack vi)Battery charging	USB (for bi-directional computer interface) BNC BNC BNC Audio jack Power jack
3.14	Battery life	Minimum 5 hours
3.15	Battery recharge time	Not more than 3 hours
3.16	Audio Outputs	Output for Monitoring with front panel internal speaker with volume control & head phone jack (Should disconnect speaker)

4. COMMON FACILITIES :

4.0 ENVIRONMENTAL CHARACTERISTICS :

4.1. Operation Temperature Range: 0°C to 50°C dry, RH 95% (no-condensing)

4.2 Operation Altitude : Upto 13000 ft. (4200 m)

4.3 Protection against RF Interference: The equipment shall be provided with adequate shielding against RF/ EMI interference

6. PHYSICAL DIMENSION : To be indicated by the tenderer. Weight not to be more than 3 kg.

7. GUARANTEE : The equipment shall be guaranteed against manufacturing/ design defects and for satisfactory and trouble free performance for a minimum period of one year from the date of receipt by AIR in satisfactory working conditions.

8. TEST CERTIFICATE : Test certificate of the instrument shall accompany each instrument on delivery.

9. SPARES (optional) : Essential and recommended spares(discreet PCB and Modules) shall be quoted separately for keeping the instrument in working condition for at least 10 years.

10. SERVICE FACILITY : The Tenderer shall specify the repair/service facility available for the equipment in India with address, Phone/Fax nos. etc.

11. SUPPLY RECORDS:

The tenderer shall furnish a record for supply of same model of equipment to the various customers along with their addresses, contact nos/email addresses etc along with the tender.

12. INSTRUCTION MANUAL

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

13. ACCESSORIES : The following accessories shall be supplied as standard:

- (i) Necessary connectors
- (ii) Carrying Case
- (iii) Tripode stand
- (iv) Battery charger
- (v) Rechargeable battery
- (vi) All Jacks

14. COMPLIANCE

Para-wise compliance report for all parameters supplemented by leaflet/detailed leaflet wherever required, shall accompany the offer. Offer without compliance and supplement will be rejected out rightly.

Approved vide letter No. 10(34)2004-D(TD) dated 23.01.06

**(M. R. BHARARA)
Dy. Director Engg (TD)**