



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076

For RfX No.6100000367 (PR No. 1000014426)

Technical Specifications for Research Grade Benchtop ESR Spectrometer

External PC controlled Benchtop ESR Spectrometer with essential software should be able to study the paramagnetic samples (example, free radicals, transition metal complexes, transient species etc.) both in solid state and solution at room temperature and liquid nitrogen temperatures.

Minimum requirements of technical specifications are given below:

1. Operating frequency: X-band with approximate range (9.2 to 9.6 GHz).
2. Microwave power: 1uW -100 mW or more
3. Sensitivity: 5×10^{13} spins/T
4. S/N ratio: 600:1
5. Field Modulation: $1 \mu\text{T}$ -1mT
6. Field sweep range: 0 to 625mT or more
7. Field homogeneity: +/- 5 μT within sample region
8. Field stability: 1.0 $\mu\text{T/h}$ or more
9. Modulation frequency: 10 kHz and 100 kHz
10. Magnetic field range: 0 to 650 mT or higher
11. Sweep resolution (field & time): >125,000 points
12. Resonator: Rectangular TE 102
13. Electro magnet: Air cooled with magnetic field control.
14. Cold Finger Dewar with holder for measurement at liquid nitrogen temperature.
15. Software for data processing/evaluation, Computer controlled operation of spectrometer, automatic tuning, integration & differentiation of spectra, data management/report generation, print-out etc.
16. Integrated, motorized reference standard for amplitude and g-factors. Provided, standard reference samples weak & strong pitch, DPPH or other standard samples for calibration purpose.
17. As reference, there must be two such systems installed in reputed Govt. Institutions/Research Laboratories in last 3-5 years. Past PO copies to be provided along with the Technical Bid.
18. System should be supplied with 1 year warranty.