

Indian Association for the Cultivation of Science
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Ref. No. CSS/FESEM/107

Date : 08-03-2018

Corrigendum of Tender : NIT No. IACS/CSS/FESEM//2017-18/107, Date: 16-02-2018

Technical Specification for 'Field Emission Scanning Electron Microscope'

Features	<i>Specifications In the Original Tender Notice</i>	<i>Specifications After the Pre-bid Meeting</i>
Resolution	SE mode : 1 nm or better @ 15 kV and 1.5 nm or better @ 1 kV The definition of resolution and the method used to determine the same should be specified. At lower kV high resolution support should be maintained with proper hardware / technology. Documented authentication has to be provided. Resolution has to be demonstrated after installation of the system with samples, according to the specifications.	SE mode : 0.8 nm or better @ 15 kV and 1.5 nm or better @ 1 kV The definition of resolution and the method used to determine the same should be specified. At lower kV high resolution support should be maintained with proper hardware / technology. Documented authentication has to be provided. Resolution has to be demonstrated after installation of the system with samples, according to the specifications.
Accelerating voltage	≤ 0.1 to 30 kV continuously adjustable	< 0.1 to 30 kV continuously adjustable (<i>minimum value in the lower range should be mentioned</i>)
Electron gun	Schottky field emitter with 12 months guarantee at average 8-10 hours working per day.	Schottky field emitter preferably with 36 months guarantee at average 8-10 hours working per day.
Electron Optics	Beam Deceleration/Gentle Beam/Beam Booster technology or equivalent for high resolution imaging at low kV. Optics should have appropriate measures to analyze magnetic materials at high magnifications.	Beam Deceleration/Gentle Beam/Beam Booster technology or equivalent for high resolution imaging at low kV. Optics should have appropriate measures to analyze magnetic materials at high magnifications

	Documented authentication has to be provided.	with high resolution. Documented authentication has to be provided.
Detectors	❖ In lens/in column SE ❖ In-chamber SED (Everhart-Thornley) ❖ In-lens BSE/ Angle Selective BSE/ Equivalent Technology ❖ Energy filtering technology should be built-in with capability of simultaneous acquisition and display of images ❖ Detector should have capability of high sensitivity for low kV analysis ❖ Specify built-in automatic/manual control for contrast and brightness	❖ In lens/in column SE ❖ In-chamber SED (Everhart-Thornley) ❖ In-lens BSE/ Angle Selective BSE/ chamber mounted retractable BSE/ Equivalent Technology ❖ Energy filtering technology/equivalent technology should be built-in with capability of simultaneous acquisition and display of images ❖ Detector should have capability of high sensitivity for low kV analysis ❖ Specify built-in automatic/manual control for contrast and brightness
Chamber	❖ Large chamber with at least 6 or more accessory ports. ❖ Chamber air-lock design for changing of the specimens quickly. ❖ Chamber should be equipped with an IR-CCD camera or any suitable device to view the sample & stage inside the analysis chamber.	❖ Large chamber with at least 6 or more accessory ports. ❖ Chamber should be equipped with an IR-CCD camera or any suitable device to view the sample & stage inside the analysis chamber.
Specimen Holder	❖ Singles stubs - 10 nos. ❖ Multiple sample holder (≥ 5) – 5 nos. ❖ Carbon tapes - 10 nos.	❖ Singles stubs - 10 nos. ❖ Multiple sample holder (≥ 5) – 2 nos. ❖ Carbon tapes - 10 nos.
EDS	❖ Energy resolution: >127 eV at Mn-Kα. ❖ Thin film analysis software with nanometer scale resolution in both space and depth capabilities should be quoted. ❖ The detector area should be at least 50 mm^2 or larger, for handling high count rates, covering larger solid angle and working at low x-ray signal.	❖ Energy resolution: <127 eV at Mn-Kα. ❖ Thin film analysis software with nanometer scale resolution (preferably 10-500 nm range) in both space and depth capabilities should be quoted. ❖ The detector area should be at least 50 mm^2 or larger, for handling high count rates, covering larger solid angle and

	❖ Offline data analysis for EDS ❖ Calibration standard (Preferably from NIST) –multi-element standard materials for entire spectrum.	working at low x-ray signal. <i>(should quote separately for large area detector)</i> ❖ Offline data analysis for EDS ❖ Calibration standard (Preferably from NIST) –multi-element standard materials for entire spectrum.
EBSD		EBSD (Optional) <i>(Should quote the price separately)</i>

Acting Registrar