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Ref. No.: IITI(MM)/EE/066/PRJ/MK/2025-2026 **December 29, 2025**

PREBID REPORT

The online meeting for Pre-bid discussion was held at **IIT-Indore through online channel on 23/12/2025 at 03.00 PM onwards** for **Supply and Installation of Spectroscopic Ellipsometer with variable angle.**

Please find below the queries received and their responses.

Sl. No.	Reference of the Clause/ Page No. of the Tender Document	Query raised	Query Raised by	Response from IITI
1.	**Technical Specification Page No. 18, Sr. No. 1 Wavelength Range:** From 250 nm to 2300 nm	240nm - 2500 nm	**M/s. Labindia Instruments Pvt. Ltd.**	Updated
2.	**Technical Specification Page No. 18, Sr. No. 2 Used Technology:** Rotating analyser ellipsometer + computer - controlled retarder and wavelength selection through scanning monochromator.	Rotating /Step scan analyser Ellipsometer + computer controlled Retarder/ compensator, Measurement time UV-VIS NIR: less than 15 sec,Fast mode : 200 ms		Suggested specs are already in our tender document.
3.	**Technical Specification Page No. 18, Sr. No. 4 Spectral Resolution:** Minimum monochromator step size is 0.3A slit size control through software.	Spectral Resolution (Wavelength Spacing) - 0,45 nm Spectral Resolution (Bandwidth) - 5nm FWHM (240nm to 2500nm)		Please provide full justification against this point referring to given specification while applying for tender
4.	**Technical Specification Page No. 18, Sr. No. 5 Accuracy:** The instrument accuracy is measured in the " straight through" configuration. Ψ = 45.00° ± 0.03° tan(Ψ) = 1 ± 0.001 Δ = 0.00° ± 0.20° cos(Δ) = 1 ± 0.000006	Ψ (Psi): 45 deg ± 0.03 deg (Delta): 0 deg ± 0.06 deg		Suggested specs are already in our tender document.
5.	**Technical Specification Page No. 18, Sr. No. 6**	Straight Through Accuracy of 10 second		Please provide full justification against this

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	Repeatability/Precision: repeatability is defined as the standard. deviation of 30 consecutive measurements of Ψ and Δ on a 30nm SiO2\Si wafer. Ψ = ± 0.015° tan (Ψ) = ± 0.001 Δ = ± 0.08° cos (Δ) = ± 0.0015	measurement of empty beam (air) is required for 95% of all wavelength as below: Psi 45° ± 0.03° or better, Delta 0° ± 0.06° or better	**M/s. Labindia Instruments Pvt. Ltd.**	point referring to given specification while applying for tender
6.	**Technical Specification Page No. 18, Sr. No. 7 Lamp Source:** Xenon light source air cooled to cover the entire required range	Light source Combined Deuterium /Tungsten Halogen lamp for UV-VIS-NIR		Please provide full justification against this point referring to given specification while applying for tender
7.	**Technical Specification Page No. 18, Sr. No. 8 Detector:** The vendor must specify appropriate detectors for UV-Vis and NIR Wavelengths along with necessary cooling arrangements as required	UV / VIS: highly sensitive Si CCD array detector, NIR: Si/InGaAs sandwich photodetector (with FTIR),		Suggested specs are already in our tender document.
8.	**Technical Specification Page No. 18, Sr. No. 10 Polarizer/Analyzer/ Compensator:** Fixed Polarizer Type: Glan-Taylor, calcite Extinction ratio. < 5x10-6. Stepper motor driven rotation stage Stage accuracy typically 0.01°	Glan Thomson prisms, extinction rate >5*10-6, angular precision <0.02°, computer controlled for highest measurement accuracy		Please provide full justification against this point referring to given specification while applying for tender
9.	**Technical Specification Page No. 18, Sr. No. 11 Automatic Goniometer:** Fully automated motor-driven control: Angle Range: 15° to 90° Software control allows any angle in step of 0.02deg Accuracy: 0.01°	The system must have goniometer for angle adjustment in the range 40 – 90° or better with an accuracy of ±0.02° or better, repeatability/precision of ≤0.02° or better		Please provide full justification against this point referring to given specification while applying for tender (how lower angle range will not affect and will have same accuracy)
10.	**Technical Specification Page No. 18, Sr. No. 12**	compensator for UV-VIS and NIR spectral range and to measure the ellipsometric		Please provide full justification against this

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	Autotrader: For optimum accuracy for Δ measurements when near 0° or 180°	angle in the whole data range from 0° to 360° with extreme accuracy	**M/s. Labindia Instruments Pvt. Ltd.**	point referring to given specification while applying for tender
11.	**Technical Specification Page No. 19, Sr. No. 13 Sample Stage:** The system must be able to hold optical substrates/wafers up to 200 mm in diameter along with suitable vacuum chuck; the instrument stage/table should be with antivibration arrangement.	Fixed sample stage with 200 mm sample platform, height and tilt- adjustable, vacuum chuck., limited only by the platform size.		Suggested specs are already in our tender document.
12.	**Technical Specification Page No. 19, Sr. No. 14 Substrate Tilt correction:** Electro-optic alignment detector with computer aided sample alignment by Crosshair.	Accurate alignment, Video camera to show the alignment status on monitor and for sample visualization.		Please provide full justification against this point referring to given specification while applying for tender (provided details about alignment system/method)
13.	**Technical Specification Page No. 19, Sr. No. 15 Fitting & Control Software:** • The system must be supplied with appropriate control and fitting software. The fitting software must support easy calibration, automatic data acquisition, automatic mapping and fitting, provision to import/export data. The fitting software must contain an exhaustive library of group IV, IIIV compound semiconductors, dielectric materials (at least 200 material types in total or better) and several dispersion models (at least	Comply and measurement performance, Measurement performance Thickness range transparent films ~ 200.000 nm, absorbing films: depends on absorption index For SiO2 films on Si: Thickness precision (1σ) 20 nm SiO2: +/- 0.02 nm 100 nm SiO2: +/- 0.03 nm Refractive index precision +/- 0.0004		Suggested specs are already in our tender document.

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	20 or better) used for fitting n and k values and thickness extraction for different materials. • The software must come with at least 5 perpetual seat licenses and software manual explaining detailed working and tuning of the software. • Multilayers more than 10 should be possible		**M/s. Labindia Instruments Pvt. Ltd.**	
14.	**Technical Specification Page No. 19, Sr. No. 16 Facilities**: Spectroscopic Ellipsometry with Variable Angle • Generalized data • Mueller-matrix (MM-SE) • variable angle, g-SE or MM-SE in reflection or transmission • Reflected/Transmitted Intensity (R/T) • Scatterometry (R/T versus scatter angle) • Percent Depolarization	Refractive index, extinction coefficient, absorption coefficient and film thickness, Transmission (%)and Reflection (%) It measures the ellipsometric angles (psi, delta), Fourier coefficients (S1, S2), transmission (T) and reflection (Rs, Rp) in the spectral range including sophisticated multiple angles, multiple samples, and combined photometric data analysis, Mueller matrix formalism, Generalised ellipsometry,, programmable customer interface, and advanced reporting		Suggested specs are already in our tender document.
15.	**Technical Specification Page No. 19, Sr. No. 17 Porosimeter:** The system should be capable of measuring porosity of thin films and coatings (porosity range: 0 to 100%) deposited on any substrate. There should be provision to carry out average pore size measurement. There should be provision in the software package to display the volume fraction of material and void in terms of percentage.	Kindly delete it as it is for specific supplier		Please provide full justification against this point referring to given specification while applying for tender. You may provide alternative method/technology for this.

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16.	**Technical Specification Page No. 19, Sr. No. 20 Calibration Standard:** The vendor shall also provide relevant standard calibration samples of SiO2 on Si	Comply, 100nm Sio2 on Si	**M/s. Labindia Instruments Pvt. Ltd.**	Suggested specs are already in our tender document.
17.	**Technical Specification Page No. 19, Sr. No. 21 Warranty:** At least 3 Years Warranty after satisfactory installation and testing	1 years		Please provide full justification against this point referring to given specification while applying for tender.
18.	**Point No. 2. Used Technology:** Rotating analyzer ellipsometer + computer-controlled retarder and wavelength selections through scanning monochromator	**Requested option:** Rotating compensator ellipsometer with fast diode-array spectrographs **Justification:** Modern spectroscopic ellipsometers commonly use a rotating compensator (RCE) with fast diode-array spectrographs, offering faster data acquisition, higher stability, and equal or superior accuracy in Ψ and Δ measurements across the full spectral range.	**M/s. EdgeTech Scientific Pvt. Ltd.**	Please provide full justification against this point referring to given specification while applying for tender.
19.	**Point No.4. Spectral Resolution:** Minimum monochromator step size is 0.3A, slit size control through software	**Requested option:** Wavelength resolution of 0.8 nm (UV-Vis) and 3.3 nm (NIR) **Justification:** With diode-array- based spectroscopic ellipsometers, the achieved wavelength resolution of 0.8 nm in UV-Vis and 3.3 nm in NIR is fully adequate for accurate ellipsometric analysis and is well suited for metasurface and photonic applications.		Please provide full justification against this point referring to given specification while applying for tender.
20.	**Point No.5. Accuracy:** The instrument accuracy is measured in the "straight through" configuration. Ψ =45.00* $\pm$ 0.03*tan(Ψ) = 1 $\pm$ 0.001 Δ = 0.00* $\pm$0.20* cos(Δ) =1$\pm$0.000006	**Requested option:** Ψ = 45.00° $\pm$ 0.05° , Δ = 0.00° $\pm$ 0.05° **Justification:** Spectroscopic ellipsometers specify accuracy directly in terms of Ψ and Δ. The proposed values are sufficiently accurate for precise determination of thin-film thickness and optical constants.		Suggested specs are already in our tender document.

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21.	**Point No.6. Repeatability/ Precision:** Repeatability is defined as the standard. deviation of 30 consecutive measurements of Ψ and Δ on a 30nm SiO2/Si Wafer. $\Psi = \pm 0.015^* \tan(\Psi) = \pm 0.001$ $\Delta = \pm 0.08^* \cos(\Delta) = \pm 0.0015$	**Requested option:** Repeatability defined on a NIST-traceable 120 nm SiO_2/Si sample, specified in thickness (± 0.015 nm) and refractive index (± 0.005) **Justification:** Defining repeatability using a NIST-traceable reference sample and expressing it directly in measurement outcomes ensures robust, application-relevant precision that is independent of instrument architecture.	**M/s. EdgeTech Scientific Pvt. Ltd.**	Please provide full justification against this point referring to given specification while applying for tender.. Repeatability should be at par even at lower thickness (of 10-20 nm), kindly provide proved data.
22.	**Point No. 10. Polarizer/ Analyzer/ Compensator:** Fixed Polarizer Type: Glan-Taylor, calcite Extinction ratio:<5X10-6. Stepper motor driven rotation stage Stage accuracy typically 0.01*	**Requested option:** Motorized polarizer and analyzer with Rochon-type MgF_2 optics (extinction ratio $< 5 \times 10^{-6}$) and a motorized compensator **Justification:** Modern systems employ motorized polarizer/analyzer optics with Rochon-type MgF_2 crystals and a motorized compensator, providing equivalent polarization purity, angular accuracy, and long-term measurement stability.		Suggested specs are good for us, If we get both polarizer and analyzer rotating.
23.	**Point No. 12. Autotrader:** For optimum accuracy for Δ measurements when near 0 * or 180*	**Requested option:** Rotating compensator for full $0-360^\circ$ Δ range acquisition **Justification:** In a rotating compensator ellipsometer, the compensator inherently enables accurate acquisition over the full $0-360^\circ$ Δ range, making a separate auto-retarder unnecessary while maintaining high accuracy.		Please provide full justification against this point referring to given specification while applying for tender.
24.	**Point No. 14. Substrate Tilt correction:** Electro-optic alignment detector with computer aided sample alignment by Crosshair.	**Requested option:** Autocollimator with computer-aided crosshair alignment and manual tilt adjustment **Justification:** An autocollimator-based alignment system provides equivalent		Please provide full justification against this point referring to given specification while applying for tender.

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		substrate tilt correction accuracy and is widely adopted in advanced spectroscopic ellipsometers.	**M/s. EdgeTech Scientific Pvt. Ltd.**	
25.	**Point No. 25. Focusing probe with camera:** Lowest available in 100/200 um	**Requested option:** Necessary optics should be provided to allow measurement on small or patterned areas. The system must have suitable focusing probe to have a beam size of ≤ 200 μ m, with a separate camera positioned between the ellipsometry arms. **Justification:** Probing light focusing is independent of the camera option. The proposed configuration achieves smaller effective spot sizes while maintaining accurate visual alignment through a dedicated camera. Focusing via dedicated optics and a slit at the light source, enabling ~60 $\times$ 180 μ m illumination at 60° angle of incidence, with a separate camera positioned between the ellipsometry arms for viewing the sample center at normal incidence.		Please provide full justification against this point referring to given specification while applying for tender.

All prospective/willing bidders are requested to take note of this report as part of the Tender document. All other terms and conditions of the tender remain unchanged.

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