Subject: Reply of CUH on the queries raised by the builders during the Pre-bid Meeting held on 09/02/2026.

Name of Equipment: Confocal Raman Spectrometer with Photoluminescence Measurement System (UV, Visible and NIR Lasers)" for the Department of Physics & Astrophysics.

Sr. NO.	Name of Firm	Reference to NIT No. CUH/E&GA/HEFA/CIC/2025 -26/33	Bidder's comment/observation	Reply from CUH/Technical Committee
1.	Laser Spectra Services India Pvt. Ltd.	Installation experience (As per Tender Documents)	Kindly remove this point: OEM should have atleast 5 installations/ working Raman systems in India with UV- 325nm Laser and 3 Raman-PL systems with InGaS detector.	No Change
2.	Lab India Pvt. Ltd	Lasers (As per Tender Documents)	We request you please modify following specs for the best performance of the system • 532 nm 50 mW or higher written in the main technical specification • Point no 1. Lasers a. ii) PL filter with Spectral Range upto 1700 nm. Note - InGaAS Detector can go up to 1700 nm and spectromètrer range is asked in the tender 2100nm therfore PL filter should have up to the detector limit b. Vis - Diode 532 nm 50mW or higher, our system's design requiers 50mW laser power for 532 nm for best performance, ii) PL filter with Spectral Range upto 1700 nm. c) iii) PL filter with Spectral Range upto 1700 nm.	No Change
		Spectrometer (As per Tender Documents)	b. We have only one system which invia which has focal length 250mm therefore kindly modify Focal length spectrograph 250 mm or higher Kindly add spectrometer through put and Signal to noise ratio for 4th Order Si • High through put spectrometer > 30 % • Scan to scan repeatability better than 0.05cm-1, • High S/N noise ratio for 4th order Si 4:1	No Change

			d. Spectrometer must use with mirrors/Lenses optics for full spectrometer range. e. Switching from UV to Vis to NIR range through software control Note- Lens based spectrometer require quartz optics in UV range and glass optics in Vis-NIR range, hence the one lense needs to be switched while moving from Vis or NIR laser to UV laser. It is similar like microscope Objectives. Please delete this line f. The system must guarantee the optimum signal collection over the full range, Note- We offer lense based Spectrometer i. System must have option for ajustable confocal depth analysis using motorized pinhole / slit with automated signal optimisation k) Scan to Scan repeatability between 0.05 cm-1 or better (at least 30 measurement) *Note – You are looking high spectral resolution therefore repeatibility should be better. m) Spectral Resolution 2.5 cm^{-1} (FWHM) at 325 nm 0.5 cm^{-1} (FWHM) at 532 nm 0.5 cm^{-1} (FWHM) at 785 nm	
		Detector (As per Tender Documents)	a. CCD Detector ii) Peltier Cooled to –60 °C or better , we offer -70 °C iii) Peak Quantum Efficiency 48% or higher vii. Dark current 0.03 e- pixel-1 s-1	**(i) Peltier Cooled to –60 °C or better** **(ii) No Change** **No Change**
		Detector (As per Tender Documents)	b) InGaAs detector for NIR measurements: Peltier cooled at or below -60°	**InGaAs detector for NIR measurements:**

				Liquid nitrogen cooled
		Gratings (As per Tender Documents)	a. Gratings: 3600 l/mm/ 3000 l/mm/2400 l/mm/1800 l/mm/1200 l/mm /600 l/mm and 830 l/mm. (atleast 4 gratings to achieve and demonstrate Raman , PL Range and Resoultion)	**No Change**
		Laser Power (As per Tender Documents)	a. Motorised ND filters to allow laser attenuation on the sample from 0.0005 % (or less) to 100%. Kinldy mention ND fliters steps as well for given laser attenuation (minimum 12). We offer 16 steps.	**Motorised ND filters to allow laser attenuation on the sample from 0.01 % (or less) to 100%. (ND filter steps with Nine or more)**
		Research grade microscope (As per Tender Documents)	a) The instrument should include a t confocal microscope, which must be fully and permanently integrated in the main frame of the system and directly coupled to spectrometer to ensure highest spatial resolution, sensitivity and stability. b) Microscope with binoculars allowing lateral resolution < 1 µm and an axial resolution < 2 µm. c) Confocal measurements with < 2 µm depth resolution. d) Motorized confocal slit/pinhole should be continuously adjustable and computer e) Confocality must be controllable only by adjusting the confocal slit/ hole size continuously through the software.	**No Change**
		Objectives (As per Tender Documents)	Objectives- air exposed: 5x/10X, 20x, LWD 50x, 100x lens. Additionally, the vendor should provide 50X NIR Lens, if required for the best system performance. a) High-resolution (7MP - 8 MP or higher) colour video camera. to visualise the sample under white light illumination and the laser spot simultaneously m. System should have microscope that should be full compatibility with a low temperature cryostat intégration (low temperature Cryostat future upgrade), used to maintain low cryogenic températures of samples mounted within the cryostat down to	**No Change**

		Liquid-helium temperature to support both Raman and PL mapping with a resolution of 1 um or lesser.	
	Installation and training (As per Tender Documents)	a) Installation and three days of training on the customer's site within 15 days of delivery. (provided Installtion site should be ready)	**No Change**
	Warranty (As per Tender Documents)	• 3 years warranty on the Raman spectrometer 1 year warranty on lasers, InGaAs and heating and cooling stage	**No Change**
	a. **Point no. 26** The system must allow PL measurements throughput the whole spectral range of the CCD. It is especially desired that the coupling to the spectrometer is using achromatic mirrors to cover from DUV to NIR. b. The system should be future upgradable with Ultra Low Frequency filter, Volume Bragg Grating filters - Low frequency cut-off must be 10cm-1 or better. User should be able to easily exchange from one VBG filter to	The system must allow PL measurements throughput the whole spectral range of the CCD. It is especially desired that the coupling to the spectrometer to cover from DUV to NIR. d. The system should be future upgradable with Ultra Low Frequency filter, - Low frequency cut-off must be 10cm-1 or better. User should be able to easily exchange from one VBG filter to another without any tool e) Polarized Raman measurement should be compatible with Ultra low Frequency measurement. Please remove this line.	**No Change**

		another without any tools. c. Polarized Raman measurement should be compatible with Ultra low Frequency measurement.		
		Page No. 8 (As per Tender Documents)	14. Terms of Payment: Kindly modify payment terms • 90% Payment on delivery and installation • Balance 10% against submission of PBG	**No Change**
		Page No. 9 (As per Tender Documents)	19. Delivery Period: kindly modify it for 6 month as it is written in the specification	Delivery period may be read as within 06 months from the date of purchase order release
		Point No. 20 (As per Tender Documents)	Rescheduling: Kindly modify this clause at least one month in advance to reschedule delivery time	**No Change**
		Page No. 13 (As per Tender Documents)	38. Warranty: Kindly modify it as per tender specs warranty clause	**No Change**
3.	**Horiba India Pvt. Ltd.**	**Payment Schedule (As per Tender Documents)**	Balance 20% after 30 days from the date of handover of System and submission of PBG.	**No Change**
		InGaAs detector	InGaAs detector for NIR measurments: Aircooled at or below -60 deg C	**InGaAs detector for NIR measurements: Liquid Nitreogen cooled Liquid nitrogen**