UV-VIS-NIR SPECTROPHOTOMETER COMPLIANCE STATEMENT

S No	Parameter	BHEL Specifications	Company Remarks
1.	**Light Source**	• Halogen and Deuterium lamp	
2.	**Wavelength range**	• **190 nm - 3200 nm** (or better).	
3.	**Optical System**	• Single or double monochromator. • Holographic grating having minimum 1200 lines /mm for UV-VIS region and 300 lines /mm for NIR region **(or better).**	
4.	**Detector**	• System should have **Dual Detector.** • Photomultiplier tube for UV/VIS range. • Peltier cooled PbS detector for NIR range.	
5.	**UV/VIS Resolution**	• Resolution should be ≤ 0.17 nm.	
6.	**NIR Resolution**	• Resolution should be ≤ 0.4 nm.	
7.	**Stray light**	System should have following stray light capabilities • At 220 nm ≤ 0.005 %T • At 340 nm ≤ 0.005 %T • At 370 nm ≤ 0.005 %T	
8.	**Wavelength Accuracy**	System should have following wavelength **accuracy** for UV/Vis and NIR region. • UV/VIS **≤ ± 0.3 nm.** • NIR ≤ ± **1.5 nm.**	
9.	**Wavelength Reproducibility**	System should have following wavelength **reproducibility** for UV/VIS and NIR region. • UV/VIS **≤ ± 0.5 nm.**	

		• NIR ≤ ± **0.2 nm.**	
10.	**Sample Compartment**	System should have suitable sample compartment to hold the reference and measurement sample.	
11.	**Measurement modes**	• System should be capable to run in Transmittance, Absorbance and Reflectance mode.	
12.	**Integrating sphere for measurement of reflectance and transmittance of various solid/ powder sample**	• Diameter: 60 mm or better. • Wavelength range **200 – 2500 nm.** • Inside wall of integrating sphere should be coated with **barium sulphate or spectralon.** • Detector: Photomultiplier tube/ Pbs detector.	
13.	**Sample holders**	• Various holders for liquid/solid/powders samples to be provided.	
14.	**Software/ Computer/printer specifications**	Software should have following scans • Wavelength scan (Abs, %T, %R for sample and reference sample). • Time scan (Abs, %T, %R for sample and reference sample). • Latest version of software with window XP compatibility **Computer details** • Minimum 18 inch monitor. • RAM 2 GB or better. • Hard disk 160 GB or better. • Intel Pentium Dual core processor or better. • HP Laserjet Printer.	
15.	**Power requirement**	240 ± 10 V, 50/60 HZ Hz, details of receptacle/socket to be provided.	

16.	**Guarantee/ Warranty**	• The entire equipment (including computer) should be guaranteed for a period of 2 years from the date of commissioning. During warranty period, if there is any repair to be carried out at the supplier's works, transportation cost of equipment/component besides repair / replacement charges, if any, should be borne by the supplier.	
17.	**Qualification Criteria & Other Aspects**	• The vendor should have supplied minimum two systems in India and details should be furnished. • Should have agents in India to provide after sales service, support and maintenance. • Photographs and catalogues related to every item of machine should be enclosed at the time of supplying the system. • Dimensions of equipment, weight and space requirements should be submitted in technical offer. • Installation & Commissioning should be carried out at BHEL R&D. Pre-installation requirements should be furnished. • Commissioning charges, if any, to be indicated. • Two hard copies of all the operational manuals related to the system have to be provided while supplying the system. • The supplier should certify the availability of spares for a minimum period of 10 years from the date of system commissioning.	