

NATIONAL INSTITUTE OF TECHNOLOGY,
TIRUCHIRAPPALLI - 620 015

Tender Notification No.7/2007

Department of Mechanical Engineering

Item No. 04. Laser beam Analyser and hand held Power probe

Item	Details	Specifications
1	Industrial Laser beam analyzer with Laptop system for 2000 watt CW Nd:YAG Laser	
	Min and Max average power	200 W to 2000 W
	Maximum average power density	Above 3.5 kW/ cm ²
	Min and Max energy	100 mJ to 100 Joules
	Camera	1/2" format 10 bit digital CCD with IEEE 1394 firewire interface. Built in optics to reduce the beam diameter, attenuates the intensity and images the beam on the CCD.
	Shutter speeds	Continuously variable 1/frame rate to 1/6,000 manual or automatic
	Gain control	0dB to 27dB in ~700 steps (each step is ~0.035dB). Manual or automatic control
	Frame rate	Up to 30Hz automatically synchronized with laser pulses
	Software features	Automatic gain and shutter control. Peak and Centroid position tracking. 2D and 3D contour map. Sophisticated noise and background control. Best fit to Gaussian or top hat profile 3D display viewable from any angle or elevation. Store and recall screens in single or video fashion. Three different measures of beam width, % of peak, four sigma and 90/10-knife edge. Save numerical data files of profiles. Log data with time. Full on line instructions and help. Fully flexible screen format.
	Operating System	Laptop PC - Pentium – 4, 2 GHz, 512 MB RAM Memory, IEEE 1394 Interface Requires PCI or CardBus Slot. Operating system: Windows XP
	Intensity adjustment	Continuously variable filters actuated from outside the unit
	System optical performance	
	Field of view	±2.5°
	Maximum beam size	Ø 25 mm
	Beam reduction	5 to 10X
	Resolution	Higher than 75µm
	RP power/energy/temporal profile unit	
	Temporal pulse shape response time into oscilloscope	1µs

	Software functions with USBI interface connected to laptop should provide	Average power, energy per pulse, pulse rate, statistics, missing pulses
	Data logging	Should send unlimited number of points in real time to PC via USB Interface at >1000 point/s. Windows software to be provided for data analysis.
1 (a)	BEAM splitter	Suitable Beam Splitter(s) to measure a maximum output power of 2000 W with 1.06 μm wavelength
1(b)	Picoscope PC oscilloscope	1 MHz virtual oscilloscope to the operating system (Laptop) into an oscilloscope displaying the temporal pulse shape
2	Hand held laser power measuring device for 2 kW CW Nd:YAG laser	
	Power range	200 – 5000 Watts
	accuracy	± 2 to 5 %
	Repeatability	± 1 %

Note:

1. Cooling water supply temperature, flow rate and pressure to be mentioned by the supplier. Based on this cooling arrangements will be provided by the user for laser beam analyser – item 1.
2. Minimum Laser beam size available with the existing 2 kW CW Nd:YAG laser system is 0.4 mm.
3. Suitable cooling system must be provided if necessary for hand held power measuring device- item 2 .