BENTHAM

PhotoTest450

In Vivo Phototesting System

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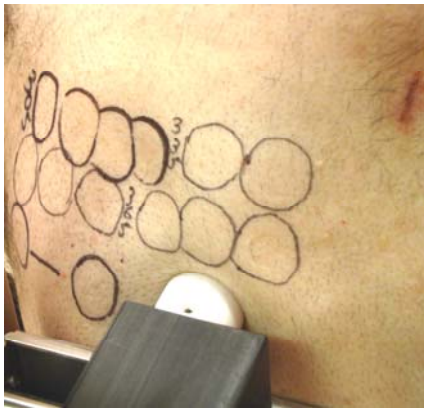
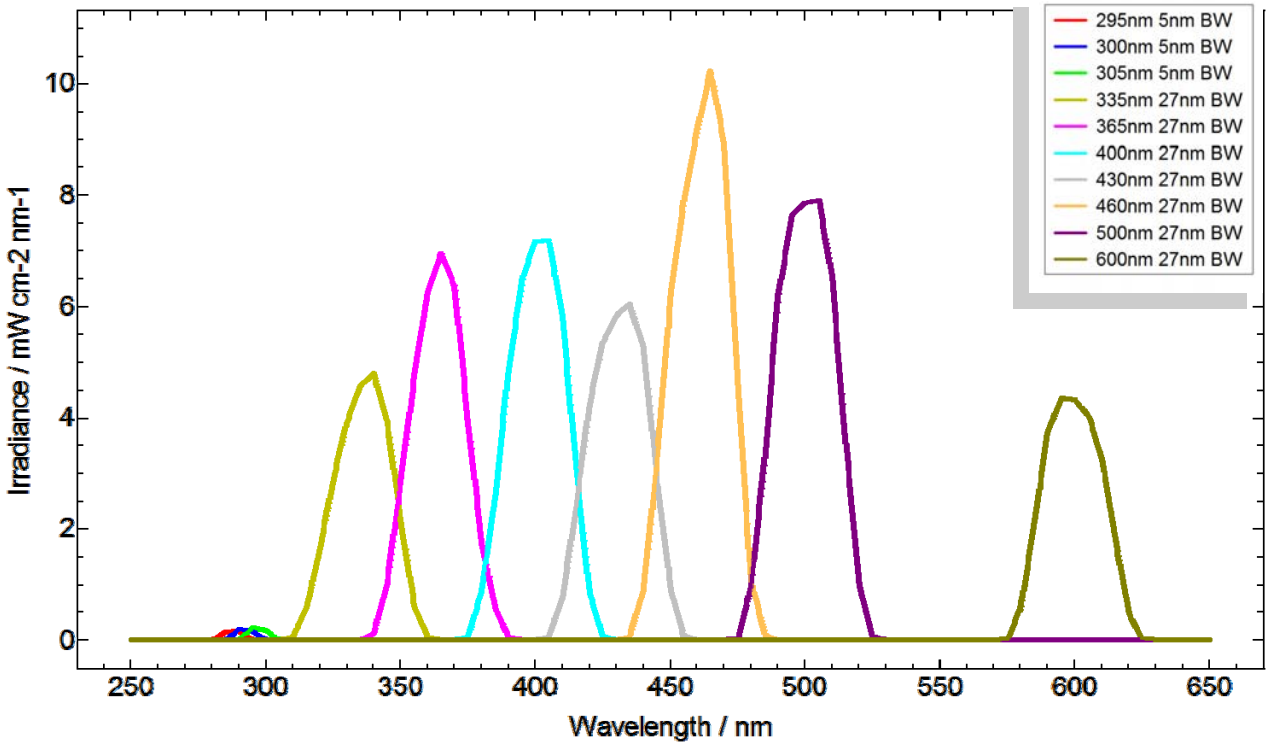
The PhotoTest450 is a trolley-based high irradiance source of UVB-UVA– and visible monochromatic radiation.

Reliable and economical to run, the PhotoTest450 is used in phototoxicity testing, photogenotoxicity testing and in the investigation of potential phototoxic risk in trials of topical and systemic drugs.

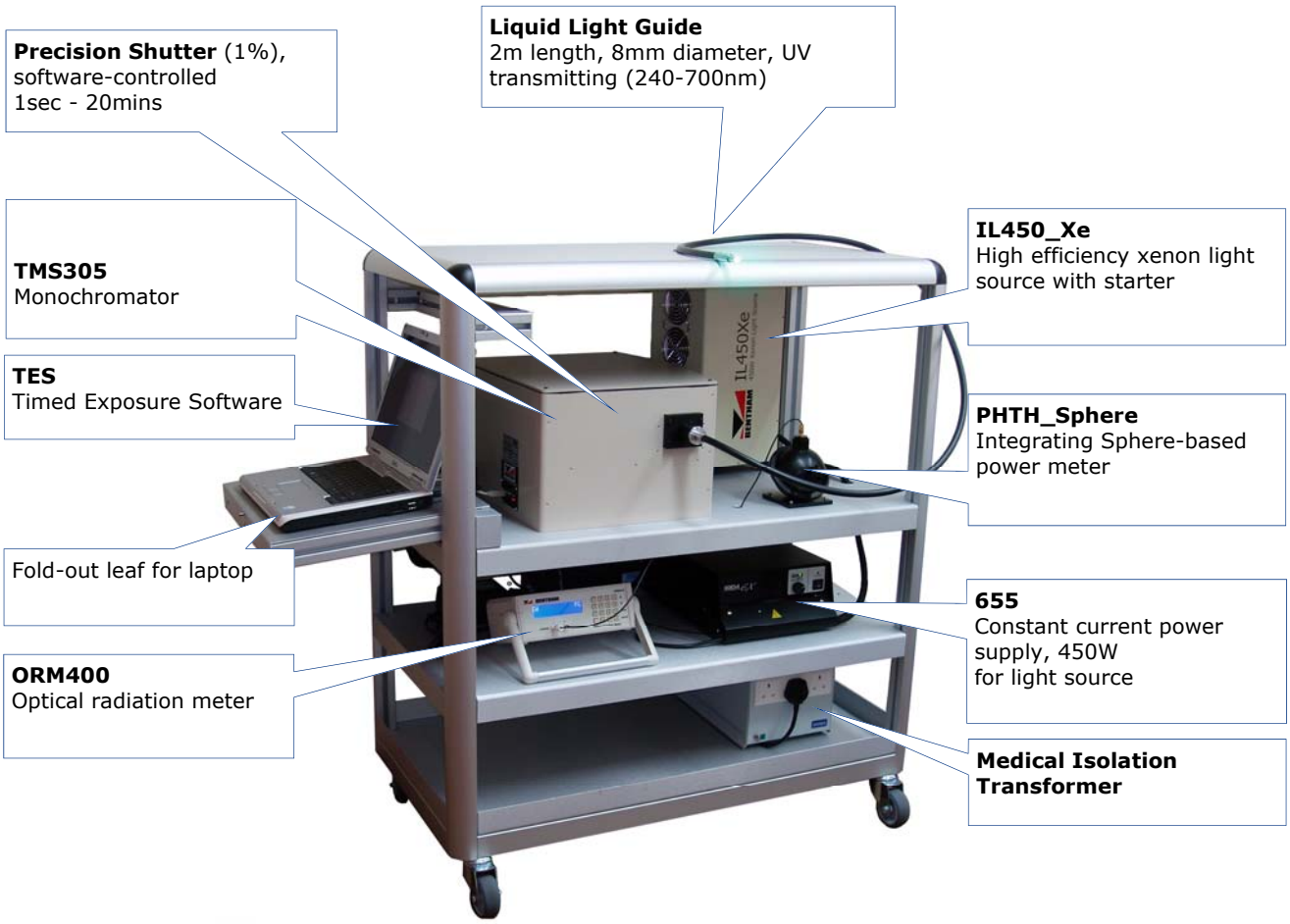


Key Features include:

- Reduced exposure times due to high irradiance monochromatic source
- Flexible light guide delivery to the patient exposure site
- Portable, trolley-based system
- Accurate dosimetry of monochromatic probe using calibrated integrating sphere.
- Easy to use Windows® control software
- Water cooling of xenon source not required
- Simple and inexpensive replacement of lamps

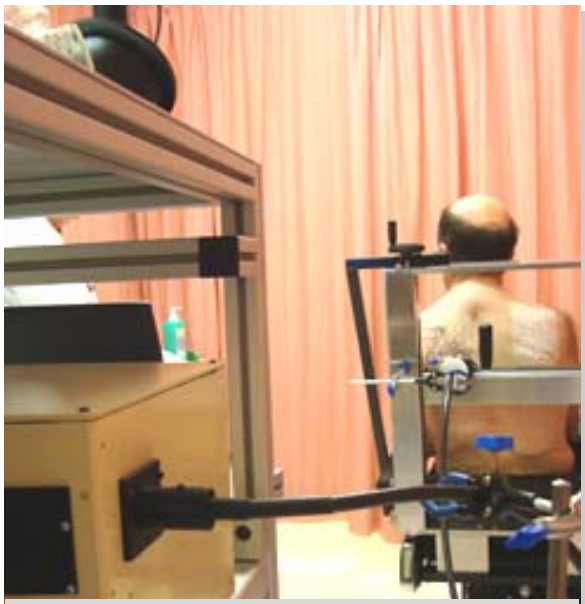


PhotoTest450 Overview



PhotoTest450
Typical Irradiance at Exposure Site

Wavelength (nm)	Bandwidth (nm)	Irradiance ($mW.cm^{-2}$)
295	5	2.22
300	5	2.46
305	5	2.61
335	27	143.19
365	27	167.95
400	27	254.79
430	27	201.17
460	27	299.22
500	27	235.58
600	27	128.53



Clinical use of PhotoTest450

Image courtesy of Professor Harry Moseley, Photobiology Unit, Ninewells Hospital, Dundee.

Specification

Monochromatic Source	
Lamp rating	450W
Typical lamp current	27A
Lamp lifetime	2000h
Current sensing	Current transducer coupled to ORM400
Monochromator configuration	Asymmetric, single Czerny-Turner
Focal length	300mm
Grating mount and drive	Stepping motor driven triple grating turret
Diffraction gratings installed	2400 groove/mm holographic, 250nm blaze 1200 groove/mm ruled, 400nm blaze 1200 groove/mm ruled, 500nm blaze
Grating size	2400 g/mm– 68x84mm 1200 g/mm—90x90mm
Aperture ratio	f/3.6 (at all grating angles)
Number of entrance/exit ports	1 entrance, 1 exit
Slit type	Internal motorised variable
Slit width & height	10µm-10mm (W) x 20mm (H)
Order sorting	6-position filter wheel (includes shutter), 25mm diameter
Spectral range	280-600nm
Maximum bandwidth	2400 g/mm– 13.5nm 1200 g/mm—27nm
Wavelength accuracy	± 0.1nm (2400 g/mm); ± 0.2nm (1200 g/mm)
Wavelength reproducibility	± 0.025nm (2400 g/mm); ± 0.05nm (1200 g/mm)
Beam dosimetry	
Integrating sphere diameter and coating	4”, $BaSO_4$
Sphere detector	Silicon photodiode
Sphere calibration	Spectral Responsivity, $A.W^{-1}.nm^{-1}$
Calibration traceability	PTB, Germany
Peak responsivity (typical)	$0.14mA.W^{-1}$
Photocurrent measurement	Six-decade trans-impedance amplifier/ ADC
Automation	
Software control	TES (TMS305, ORM400)
General	
Power supply	Mains 110V/220V, 50/60 Hz through medical transformer
Interface	USB 2.0 (TMS305, ORM400)
Dimensions	538 (W) x 1283 (L) x1153 (H) mm
Weight	80 kg

Bentham Instruments Limited
2 Boulton Road
Reading, Berkshire
RG2 0NH, United Kingdom

T: 00 44 (0) 118 975 1355
F: 00 44 (0)118 931 2971
E: sales@bentham.co.uk
W: www.bentham.co.uk