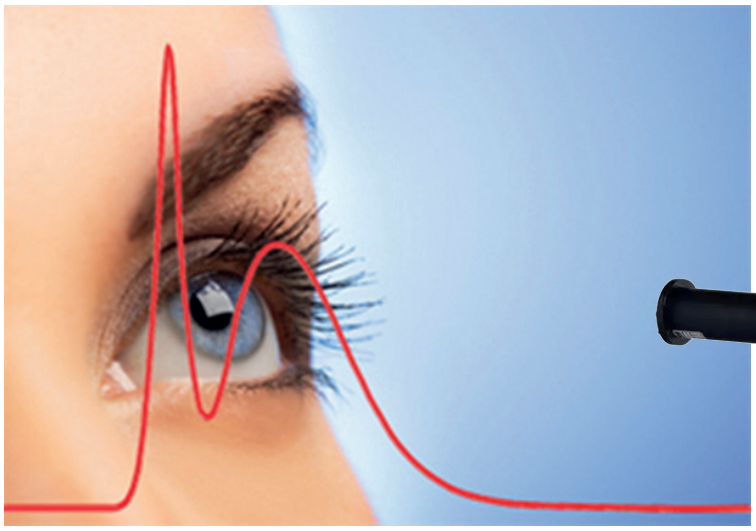
B-IDR300-PSL Spectroradiometer system
Evaluation of the photobiological safety of lamps (200-3000 nm)



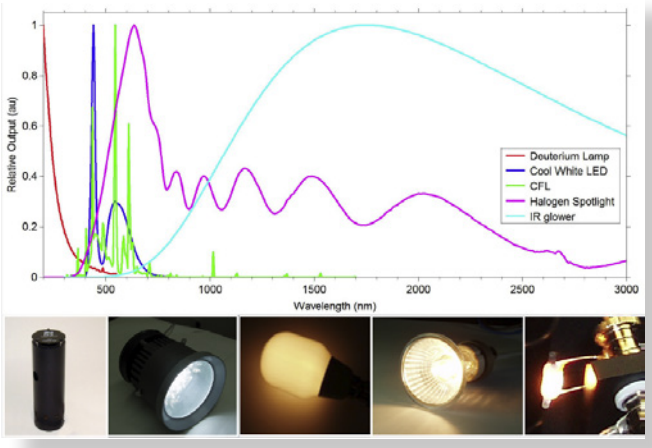
Key features

- Fully compliant to instrumentation requirements of IEC/EN62471 & ANSI RP27
- Double monochromator based spectroradiometer with single monochromator configuration and integrated DC detection electronics
- Wide spectral range, 200-1700 nm, measured in single scan
- Optional IR extension to 3000 nm
- Motorised slits to vary instrument bandwidth throughout scan range
- NMI traceable calibration standards
- Irradiance and radiance input optics adapted to requirements of standard
- PSL Profiler to determine (apparent) source size and location
- Integrated virtual luxmeter for determination of GLS 500 lux distance
- Fully automated through BenWin+ Windows® spectroradiometer software and USB interface
- PSL Wizard guides user through measurements, performs calculations, classification and provides labelling information

B-IDR300-PSL spectroradiometer system

In response to the recommended instrumentation requirements of IEC/EN62471 for the evaluation of the photobiological safety of lamps and lamps systems, and the complex sequence of measurements required, Bentham have introduced the B-IDR300-PSL spectroradiometer system.

Combining products from our long-established spectroradiometer portfolio, new products designed to meet the specific requirements of these standards, fully automated windows control software and software guidance taking the user through all steps of the procedure including calculation and report generating, the B-IDR300-PSL system makes the process of lamp to label as simple as possible.



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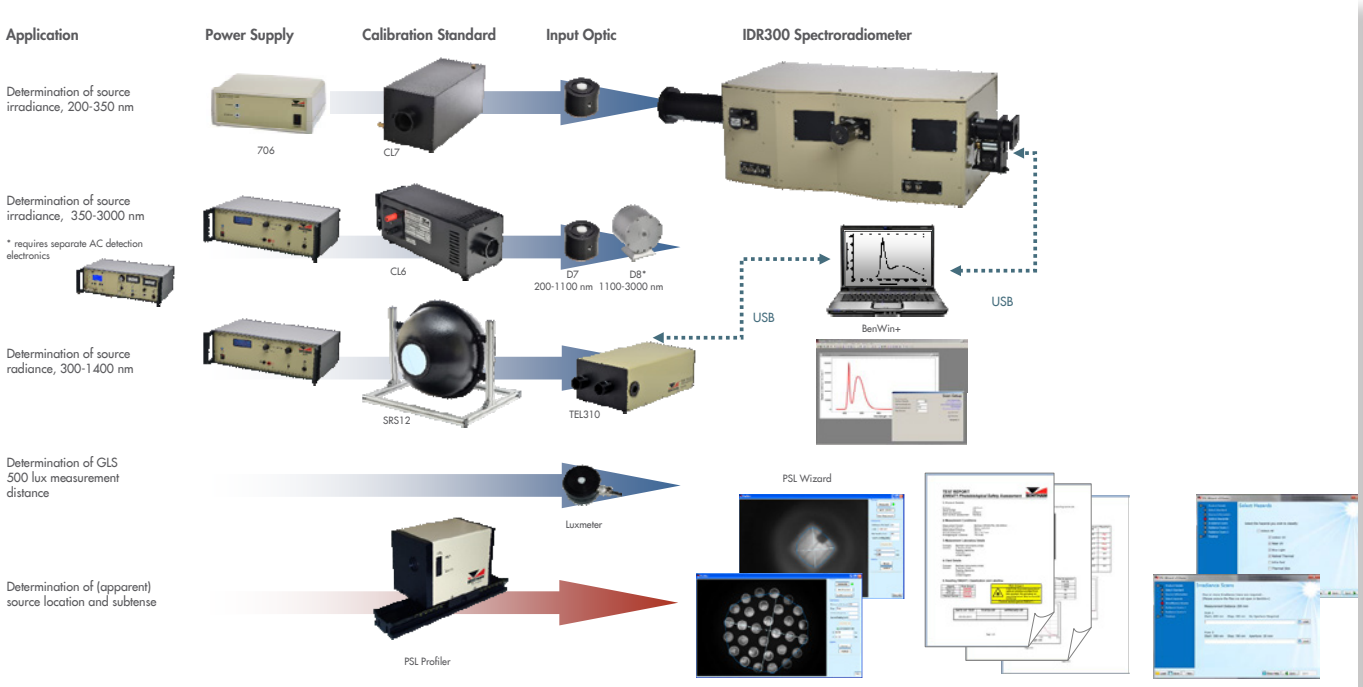

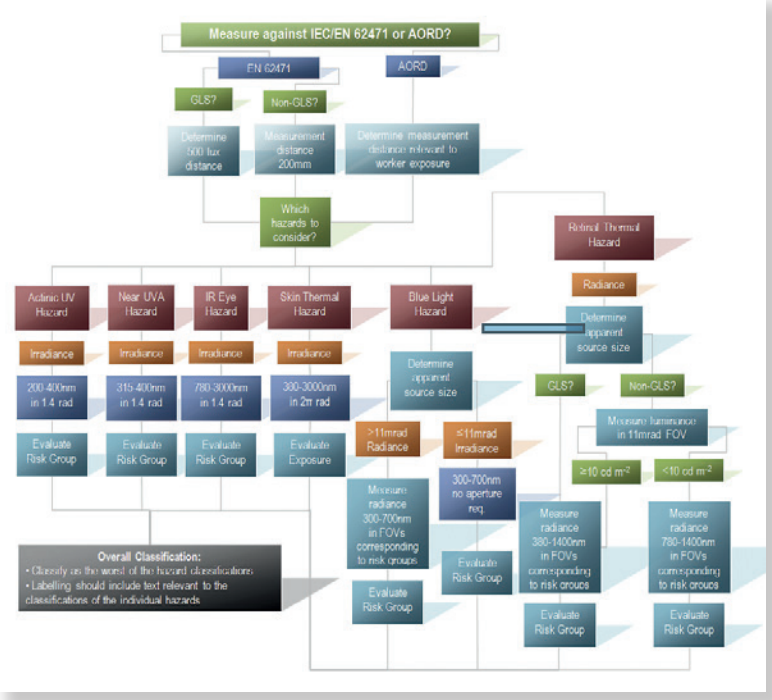

The B-IDR300-PSL system is complemented with two software applications:

BenWin+ is a Windows-based software application designed to automate the entire Bentham range of monochromators, detection electronics and accessories, and includes measurement-specific configurations to permit the easy migration between instrument set-ups. With an intuitive layout and easy to use graphical interface, BenWin+ facilitates system calibration, the performing of a wide range of measurements, and the data analysis thereof.

The **PSL Wizard** is designed to run in parallel with BenWin+, and provides the user with a step-by-step guide to the implementation of photobiological safety standards. Providing guidance on the measurements to be made and performing all calculations and classification, the procedure culminates in the production of a measurement report exported to a customisable template, including recommended labelling information according to IEC TR 62471-2, or to an IECEE test report.

The PSL wizard also provides an interface with the PSL Profiler, a CMOS camera-based source profiler used to determine (apparent) source size and location.

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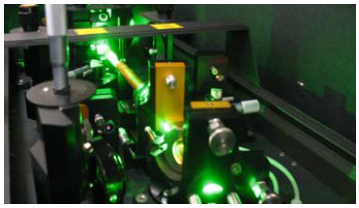
Further example applications

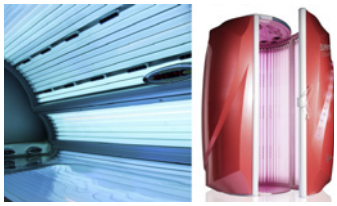
Applications of Bentham spectroradiometer family of products are as diverse as the system configurations available. The following applications are deemed pertinent to the interests of optical radiation safety and laser equipment community.

Laser diagnostic tool



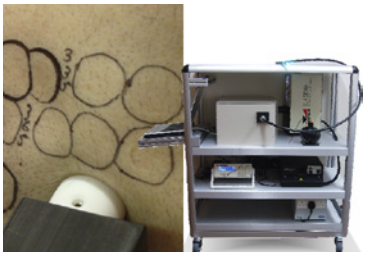
The tuneability of ultrafast lasers, coupled with harmonic generators, difference frequency generators and optical parametric oscillators can span 230 nm to 5 µm and beyond. A triple-grating B-TMc300 monochromator-based spectroradiometer is a powerful tool to establish the selected wavelength over the entire tuning range, particularly in the IR where array spectrometers are not available.

Transmittance / reflectance



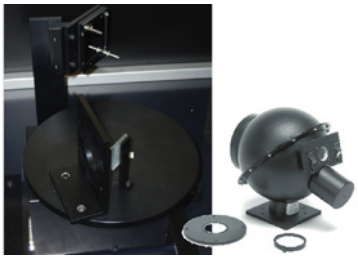
A monochromatic probe source may be assembled from a broadband source and monochromator configured for the target wavelength range. The universal measurement station (B-UMS) is a popular mirror-based system used to relay the monochromator output to a measurement space where accessories, such as the B-DTR6 and goniometer (for the measurement of normal/diffuse transmission and specular/diffuse reflectance) may be located.

Skin phototesting



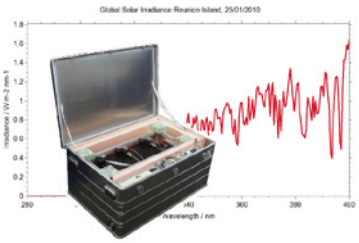
Skin phototesting may form an important part of the investigation of mechanisms giving rise to dermatological complaints of patients presenting to phototherapy departments, enabling the determination of the existence of light-sensitive disorders. The B-TMS450Xe has been designed to maximise optical output across the range 290-600 nm, thereby significantly reducing required exposure times.

Tanning appliances



EN 60335-2-27 type and compliance testing, and EN61228 testing of tanning lamps, is performed through the measurement of spectral irradiance over the range 250-400 nm, for which the B-DMc150 is in widespread use. Today, analysis includes the evaluation of "vitamin D synthesis irradiance", and the measurement capability extended up to 800 nm for the evaluation of collagen therapy lamps.

Solar UV irradiance



Since the Antarctic ozone hole was announced in 1985 (Farman et al.), Bentham has been a driving force in spectroradiometer developments for the measurement of solar irradiance. A B-DMc150/B-DTMc300 based spectroradiometer is housed in a temperature-controlled Envirobox to permit unattended outdoor measurements over the range 280-400 nm and above, with a choice of input optic to measure global, diffuser or direct normal irradiance.

UV dosimetry

The B-DMc150 compact double monochromator has been the workhorse in many applications where measurement accuracy and portability have been key.
The B-DMc150-MDE, incorporating a compact double monochromator with all detection electronics integrated to the base of the unit, combines accuracy with the convenience of an easily transportable measurement system.

Ordering information	
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