BENTHAM

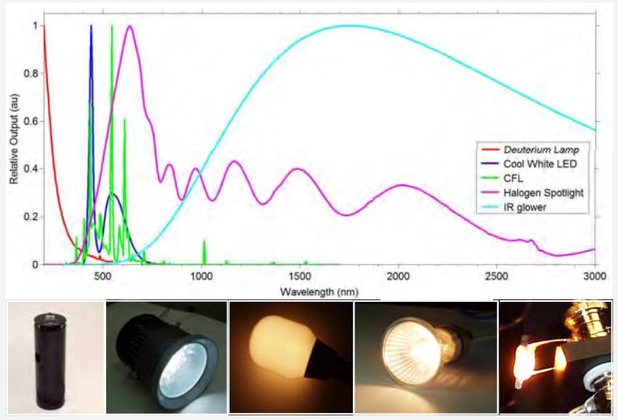
IDR300-PSL

Evaluation of the Photobiological Safety of Lamps

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 IDR300-PSL spectroradiometer system.

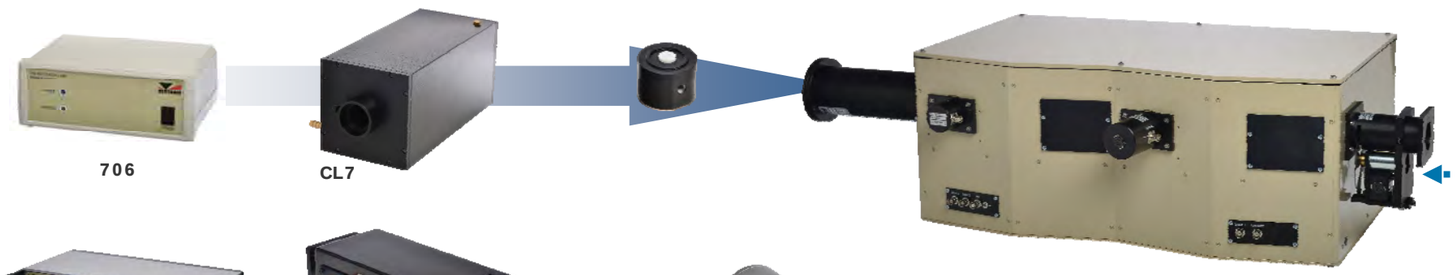
Combining products from our long-established spectroradiometer portfolio, new products designed to meet the specific requirements of these standards, fully automated windows control software and software guidance taking the user through all steps of the procedure including calculation and report generating,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

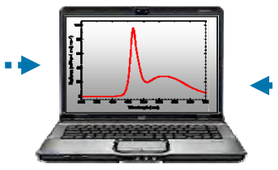


Key features:

- 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, 200-1700nm, measured in single scan
- Optional IR extension to 3000nm
- 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

Application	Power Supply	Calibration Standard	Input Optic	IDR300 Spectroradiometer
Determination of source irradiance, 200-350nm	706	CL7		
Determination of source irradiance, 350-3000nm ** requires separate AC detection electronics*		CL6	D7 200-1100nm D8* 1100-3000nm	
Determination of source radiance, 300-1400nm		SRS12	TEL310	
Determination of GLS 500 lux measurement distance			Luxmeter	
Determination of (apparent) source location and subtense		PSL Profiler		

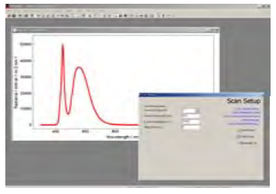




USB

USB

BenWin+



The 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.

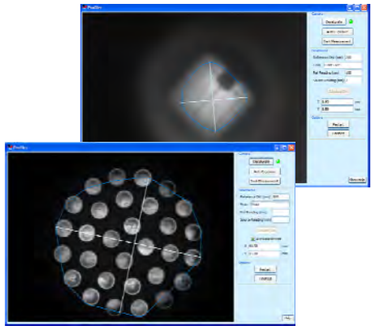
With an intuitive layout and easy to use graphical interface, BenWin+ facilitates system calibration, the performing of a wide range of measurements, and the data analysis thereof.

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.

PSL Wizard

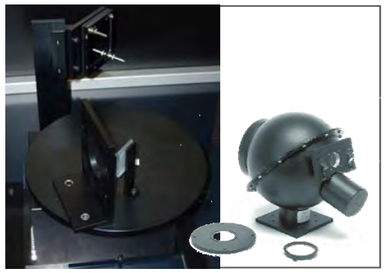


Further Example Applications

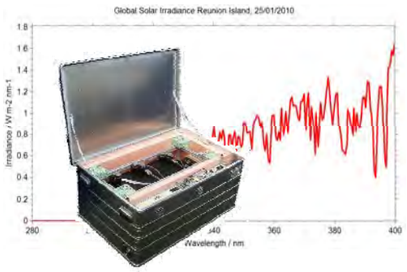
Applications of Bentham spectroradiometer family of products are as diverse as the system configurations available.

The following 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 230nm to 5µm and beyond. A triple-grating 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.

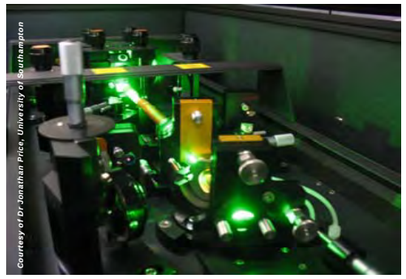


Skin Phototesting ►
Skin phototesting may form an important part of the investigation of mechanisms giving rise to dermatological complaints of patients presenting to phototherapy departments, enabling the determination of the existence of light-sensitive disorders.
The TMS450Xe has been designed to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

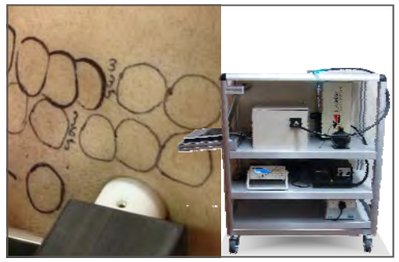


Tanning Appliances ►
EN 60335-2-27 type and compliance testing, and EN61228 testing of tanning lamps, is performed through the measurement of spectral irradiance over the range 250-400nm, for which the DMc150 is in widespread use. Today, analysis includes the evaluation of “vitamin D synthesis irradiance”,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

◄ UV Dosimetry
The Bentham DMc150 compact double monochromator has been the workhorse in many applications where measurement accuracy and portability have been key. The 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.



◄ 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 (UMS) is a popular mirror-based system used to relay the monochromator output to a measurement space where accessories, such as the DTR6 and goniometer (for the measurement of normal/diffuse transmission and specular/ diffuse reflectance) may be located.



◄ 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 DMc150/DTMc300 based spectroradiometer is housed in a temperature-controlled Envirobox to permit unattended outdoor measurements over the range 280-400nm and above, with a choice of input optic to measure global, diffuser or direct normal irradiance.

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