



Designed in accordance with the requirements of the **EN62471:2008/ IEC62471:2006** standards for the **measurement of the photobiological safety of lamps**, the TEL309 is a computer-controlled direct-view telescope, with stepping-motor driven focusing and aperture selection, permitting the measurement of radiance, over defined fields of view relevant to these standards.

A USB camera-based viewer shows the user the measurement scene; the area of measurement is coupled to any Bentham monochromator via a quartz fibre bundle.

Principle of Operation

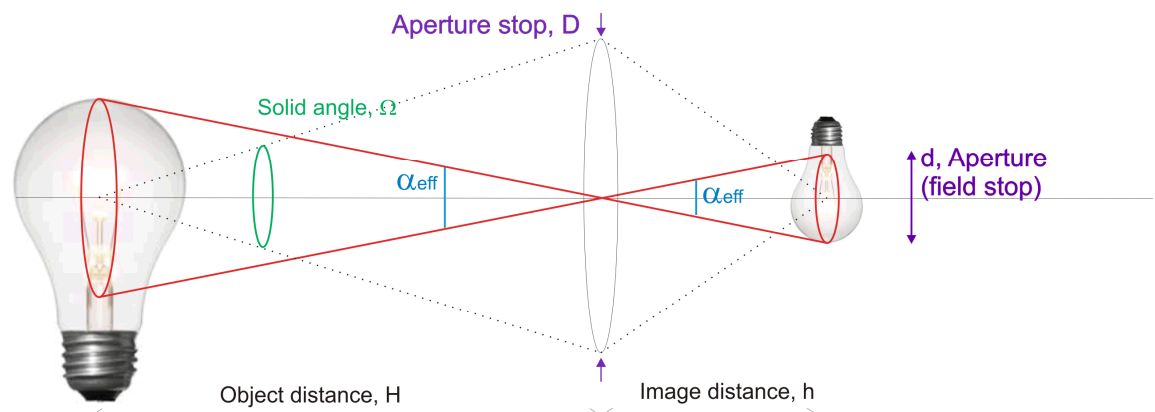
The telescope images the measurement scene onto the aperture plane, where only the selected portion of the scene is transmitted through an aperture for measurement. The corresponding field of view in radians is the ratio of the aperture diameter, d , to the distance between lens and aperture, H .

According to EN62471\ IEC62471, the source should be measured, depending upon application, at either 200mm, or at a distance at which the source produces an illuminance of 500lux, (but $\geq 200\text{mm}$). In practice the measurement distance may be many meters.

As the entrance lens position is adjusted to obtain a focussed image, the image distance changes, and, for a given aperture diameter, so therefore does the field of view.

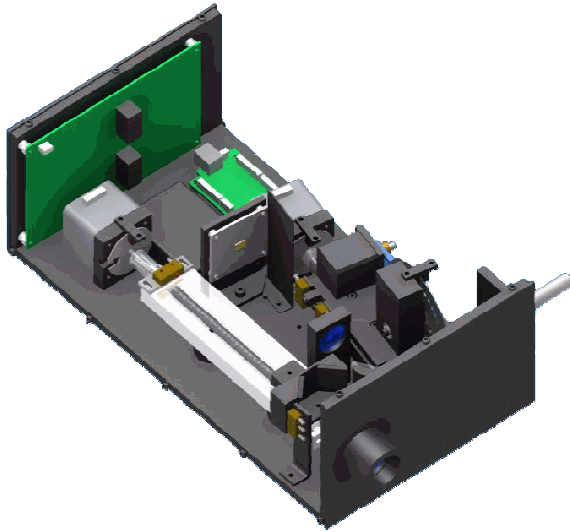
The TEL309 consists of a stepping motor driven periscope to change the image distance of the lens, and a stepping motor driven aperture wheel which automatically selects the required aperture for a given field of view, to within 1%.

Where the irradiance profile at the entrance lens may be non-uniform, a 7mm aperture stop is provided to be mounted to the lens in use to simulate the pupil.



¹ IEC62471:2006/ EN62471:2008, "Photobiological Safety of Lamps and Lamp Systems"

System Specifications



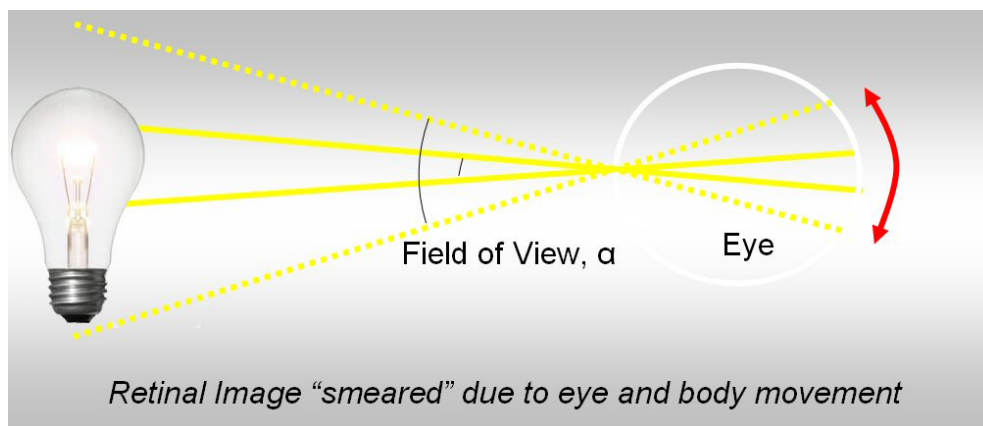
Physiological Radiance

In the measurement of the photobiological safety of lamps, source radiance is measured under conditions which attempt to replicate the physics of the human eye to determine retinal exposure.

Crucially, the field of view of measurement is time dependant.

The retinal image formed by the eye, with the passage of time, is be "smeared" out over the retina, as the eye and the viewer moves. The retinal exposure is therefore averaged over a larger area, which may reduce the potential hazard.

This time dependence is simulated by measurements of radiance over specific fields of view. It is important to note that, contrary to standard measurements of radiance, the source need not overfill the field of view, in which case the oft termed physiological radiance will be lower than the true source radiance.



Specification	
Lenses:	UV grade silica
Spectral range:	200-1800nm
Software Control:	Windows application
Range of image distance via periscope:	100-200mm
Number of apertures:	Cross hair and apertures
Range of FOVs	1.7 & 11
Viewer:	USB camera with Windows application
Power Supply:	Switch mode, 24V
Interface:	USB
Optical output	Quartz fibre bundle
Mechanical Mounting	M4 threaded holes on base