



## Photobiological safety

EN 62471 Measurements in the range of 230 ... 1000 nm



**specbos 1211UV-2** can be equipped with accessories for measurements of all photobiological measurements in the wavelength range of 230 ... 1000 nm, defined by EN 62471.

### Highlights:

- 6 Measurement of all 8 hazard categories
- 6 Configuration for Radiance as well as Irradiance based quantities
- 6 Special calculation window in software JETI LiVal for values, risk group classification and maximum exposure time
- 6 NIST traceable calibration
- 6 Included neutral density filters for extreme intensities

### Examples for applications:

- 6 Spotlights (LED and discharge lamp based)
- 6 UV illumination of production facilities
- 6 Illumination of machine vision and image processing
- 6 Industries with high temperature processes (steel, glass)

The image shows two side-by-side screenshots of the JETI LiVal software interface. The left screenshot displays the hazard assessment for BLH RG 0. It shows the 'Type of hazard' as 'Blue light', the 'Emission limits' as 'Exempt: 100', 'Low Risk: 10<sup>4</sup>', and 'Mod.Risk: 4 · 10<sup>5</sup> W/sf·m²'. The relevant equation is 
$$L_B = \sum_{\lambda=300}^{700} L_{\lambda} \cdot B(\lambda) \cdot \Delta\lambda = 17,7 \frac{W}{sf \cdot m^2}$$
 with a calculation range setting of 230 - 1000 nm. The maximum permissible exposure duration is  $t_{max} = +Inf$  hours, and the risk group is RG0 (indicated by a green smiley face icon).

The right screenshot displays the hazard assessment for Actinic UV RG 2. It shows the 'Type of hazard' as 'Actinic UV skin & eye', the 'Emission limits' as 'Exempt: 0.001', 'Low Risk: 0.003', and 'Mod.Risk: 0.03 W/m²'. The relevant equation is 
$$E_s = \sum_{\lambda=290}^{400} E_{\lambda} \cdot S(\lambda) \cdot \Delta\lambda = 1,031E-2 \frac{W}{m^2}$$
 with a calculation range setting of 230 - 1000 nm. The maximum permissible exposure duration is  $t_{max} = 2908$  seconds, and the risk group is RG2 (indicated by a red sad face icon).

Measuring window in software JETI LiVal: BLH RG 0 (left) and Actinic UV RG 2 (right)

# Specifications

## Measuring categories

- Radiance based:
  - Blue light hazard
  - Retinal thermal
  - Retinal thermal (weak visual stimulus)
- Irradiance based:
  - Blue light hazard (small source)
  - Active UV skin & eye
  - Eye-UVA
  - Eye-IR
  - Skin thermal

## Available accessories

Measuring mode	Hazard category	Accessory name	Order number
Radiance	Blue Light Hazard	Beam shaping optics for 100 mrad and for 11 mrad with internal attenuation and additional external OD1 and OD2 filters	ACC 024
		Aperture tube for 1.7 mrad, measurements only in combination with ACC 026 and in a fixed distance of 200 mm	ACC 054
	Retina thermal	Beam shaping optics for 11 mrad with internal OD2 filter and additional external OD1 and OD2 filters	Included in ACC 024 or separately as ACC 024/11
	Blue Light Hazard, Retina thermal	Mechanical elements for turning/ tilting the device to find the maximum emission of the source	ACC 025
Irradiance	Eye UVA, Actinic UV, Eye IR, Skin thermal, Blue light small source	Diffusor for Irradiance measurement, spot size $\varnothing$ 8 mm	ACC 026
	Eye UVA, Actinic UV, Eye IR, Skin thermal	80° aperture for Diffusor ACC 026	ACC 027