

Safety description of VS500 infrared light source

1. The parameters of infrared light of VS500

Peak Wavelength: $\lambda_p=850\text{nm}$

IR radiation, eye: $E_{IR}=0.62\text{W/m}^2$

Testing Agency: TÜV Rheinland (Shenzhen) Co., Ltd.

Reference: **IEC62471:2006(CIE S 099: 2002) Photobiological safety of lamps and lamp systems**

2. Photobiological safety of lamps and lamp systems

Refer to **Photobiological safety of lamps and lamp systems (IEC 62471:2006)** , Emission limits for risk groups of continuous wave lamps:

Table 6.1 Emission limits for risk groups of continuous wave lamps.

Risk	Action spectrum	Symbol	Emission limits			Units
			Exempt	Low risk	Mod risk	
Actinic UV	$S_{UV}(\lambda)$	E_s	0,001	0,003	0,03	$\text{W}\cdot\text{m}^{-2}$
Near UV		E_{UVA}	10	33	100	$\text{W}\cdot\text{m}^{-2}$
Blue light	$B(\lambda)$	L_B	100	10000	4000000	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$
Blue light, small source	$B(\lambda)$	E_B	1,0*	1,0	400	$\text{W}\cdot\text{m}^{-2}$
Retinal thermal	$R(\lambda)$	L_R	$28000/\alpha$	$28000/\alpha$	$71000/\alpha$	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$
Retinal thermal, weak visual stimulus**	$R(\lambda)$	L_{IR}	$6000/\alpha$	$6000/\alpha$	$6000/\alpha$	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$
IR radiation, eye		E_{IR}	100	570	3200	$\text{W}\cdot\text{m}^{-2}$

* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.
 ** Involves evaluation of non-GLS source

According to the form above:

When the IR radiation to eye of the light system (E_{IR}) is less than 100W/m^2 , the light system is safe to biology.

So, VeinSight VS500 vein finder fully meets the requirements of photobiological safety.

