UNIVERSITY OF PORTSMOUTH

Health Effects of Artificial Optical Radiation

WAVELENGTH INCREASES, HENCE FREQUENCY & ENERGY DECREASE

Type of Radiation	Wavelength Range (nm)	Effect on Eye	Effect on Skin
Ultraviolet (invisible)	180-302.5nm	Photokeratitis (Inflammation of the cornea also known as arc eye)	Erythema (redness of the skin)
	302.5nm to 315nm (Wavelengths <180nm are absorbed by oxygen and are not normally considered in hazard evaluation)	Photokeratitis Strongly wavelength dependent	Erythema Accelerated Ageing Pigmentation
	315nm to 400nm	Penetrate deep into the eye causing damage to the lens Photochemical Cataract	Pigment darkening
Visible	400nm to 550nm	Photochemical and thermal retinal injury	Photosensitive reactions
	550nm to 700nm	Photochemical and thermal retinal injury	Photosensitive reactions
Near Infrared (Invisible but transmitted by eye)	700nm to 1050nm	Cataract and retinal burn	Skin burn
	1050nm to 1400nm	Cataract and retinal burn	Skin burn
Far Infrared	1400nm to 1mm		
	1400nm to 3000nm	Aqueous flare Cataract burn Corneal burn	Skin burn
	3000nm to 1mm	Corneal burn	Skin burn