

Laser & Light Risk Assessment											Template Ver.: 1.1	
Main Assessor	Marco Galimberti		Assessment Team							Date	03/06/2026	
Area / Setup	Mode Cleaner, Central Building									R. A. Ver.	1.0	
Description	Locking the mode cleaner under vaccum, with gate valve close between the PR and BS											
Setup												
Operating Mode	Hazard Description	Exposed Person	Harm Description	Existing Risk Control Measures in Place				Level of Risk			Additional Controls?	Action Id
				Eliminate/Substitute	Engineering Controls	Administrative Controls	PPE	Likelihood	Harm	Risk		
Running Mode Only remote intervention	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from direct irradiation		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports. Output beam blocked on a closed gate valve	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops. The gate valve can be open only with authorization by the TSL		Unlikely	Major	Moderate	No	
Running Mode Only remote intervention	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources via reflected and transmitted light from mirrors	Staff member, Visiting expert	Eye damage from indirect beam exposure, reflected light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Running Mode Only remote intervention	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources in case of a single fault	Staff member, Visiting expert	Eye damage from accidental exposure due to a fortuitous event: damaged or misplaced optics, single fault, etc.		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Running Mode Only remote intervention	Light radiation from diffuse class 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from indirect beam exposure, diffuse light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Running Mode Only remote intervention	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Skin damage from direct irradiation		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	

Running Mode Only remote intervention	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources via reflected and transmitted light from mirrors	Staff member, Visiting expert	Skin damage from indirect beam exposure, reflected light	There is no skin damage hazard in transmission from the optics used in the setup				Absent	Moderate	Absent	No	
Running Mode Only remote intervention	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources in case of a single fault	Staff member, Visiting expert	Skin damage from accidental exposure due to a fortuitous event: damaged or misplaced optics, single fault, etc.		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Moderate	Low	No	
Running Mode Only remote intervention	Laser radiation from diffuse class 4 laser & spatially coherent light sources	Staff member, Visiting expert	Skin damage from indirect beam exposure, diffuse light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Moderate	Low	No	
Running Mode Only remote intervention	Laser radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from direct irradiation due to fiber optic disconnection					Absent	Major	Absent	No	
Running Mode Only remote intervention	Laser radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from direct irradiation due to fiber optic breakage					Absent	Major	Absent	No	
Running Mode Only remote intervention	Light radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Skin damage from direct irradiation due to fiber optic disconnection					Absent	Major	Absent	No	
Running Mode Only remote intervention	Light radiation from fiber-coupled class 3R, 3B and 4 lasers	Staff member, Visiting expert	Skin damage from direct irradiation due to fiber optic breakage					Absent	Major	Absent	No	
Running Mode Only remote intervention	Light radiation from incoherent light sources	Anyone in the room	Eye and /or skin damage					Absent	Major	Absent	No	
Running Mode Only remote intervention	Fire caused by laser & spatially coherent light sources & spatially coherent light sources	Staff member, Visiting expert			Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports. Beam properly stoped			Absent	Major	Absent	No	
Running Mode Only remote intervention	Harmful fumes caused by laser & spatially coherent light sources irradiation	Staff member, Visiting expert			Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports. Beam properly stoped			Absent	High	Absent	No	

Running Mode Only remote intervention Other member of staff Visit from general public	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources	Anyone in the room	Eye and / or Skin damage from direct, indirect or diffused irradiation		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Running Mode Only remote intervention Other member of staff Visit from general public	Light radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Anyone in the room	Eye and / or skin damage from direct, indirect or diffused irradiation due to fiber optic breakage		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Running Mode Only remote intervention Other member of staff Visit from general public	Light radiation from incoherent light sources	Anyone in the room	Eye and / or skin damage					Absent	Major	Absent	No	
Maintenance mode Intervention on the setup	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from direct irradiation		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Maintenance mode Intervention on the setup	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources via reflected and transmitted light from mirrors	Staff member, Visiting expert	Eye damage from indirect beam exposure, reflected light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Maintenance mode Intervention on the setup	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources in case of a single fault	Staff member, Visiting expert	Eye damage from accidental exposure due to a fortuitous event: damaged or misplaced optics, single fault, etc.		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Maintenance mode Intervention on the setup	Light radiation from diffuse class 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from indirect beam exposure, diffuse light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	

Maintenance mode Intervention on the setup	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Skin damage from direct irradiation		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Major	Moderate	No	
Maintenance mode Intervention on the setup	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources via reflected and transmitted light from mirrors	Staff member, Visiting expert	Skin damage from indirect beam exposure, reflected light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Moderate	Low	No	
Maintenance mode Intervention on the setup	Light radiation from class 3R, 3B and 4 lasers & spatially coherent light sources in case of a single fault	Staff member, Visiting expert	Skin damage from accidental exposure due to a fortuitous event: damaged or misplaced optics, single fault, etc.		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Moderate	Low	No	
Maintenance mode Intervention on the setup	Laser radiation from diffuse class 4 laser & spatially coherent light sources	Staff member, Visiting expert	Skin damage from indirect beam exposure, diffuse light		Laser hazard confined inside the vacuum chamber, Laser safety tents around the viewports	Viewport blocked with temporarily or permanent stops, properly labeled. Only authorized people by the TSL can modify / remove the stops		Unlikely	Moderate	Low	No	
Maintenance mode Intervention on the setup	Laser radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from direct irradiation due to fiber optic disconnection					Absent	Major	Absent	No	
Maintenance mode Intervention on the setup	Laser radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Eye damage from direct irradiation due to fiber optic breakage					Absent	Major	Absent	No	
Maintenance mode Intervention on the setup	Light radiation from fiber-coupled class 3R, 3B and 4 lasers & spatially coherent light sources	Staff member, Visiting expert	Skin damage from direct irradiation due to fiber optic disconnection					Absent	Major	Absent	No	
Maintenance mode Intervention on the setup	Light radiation from fiber-coupled class 3R, 3B and 4 lasers	Staff member, Visiting expert	Skin damage from direct irradiation due to fiber optic breakage					Absent	Major	Absent	No	
Maintenance mode Intervention on the setup	Light radiation from incoherent light sources	Anyone in the room	Eye and / or skin damage					Absent	Major	Absent	No	

