

Photon source (for FELs) / Laser-based light source parameters (at Beamline level)	Definitions of parameters	Values/ description
Source type		Flashlamp-pumped Nd-glass laser
Peak Photon energy / central wavelength	The central wavelength is the wavelength where the effective optical power of the laser pulse resides. Typically expressed in μm or nm.	1060 nm
Fluctuations of the peak photon energy / central wavelength	(Shot-to-shot absolute fluctuations of the peak photon energy or the central wavelength (whichever is defined))	N/A
Spectral Bandwidth FWHM	(The bandwidth of the spectrum (FWHM) in fraction of meters or eV)	>13 nm
Tunability (energy range or %)	(Peak photon energy / central wavelength tunability. Energy range or %) (The energy range in which the peak photon energy can be set.)	no tunability
Beam shape (Gaussian/ flat top/ other)	A function that best describes the beam profile.	rectangular superGaussian
Pulse duration FWHM	(The pulse duration at FWHM corresponds to the temporal pulse width at the half of the maximum intensity.)	150 fs (design value*)
Polarisation	(Polarization is the geometrical orientation of	Linear polarisation (S-polarisation behind the compressor, polarisation at

	oscillations of the electric field vector. The polarization direction in case of linear polarization).	target determined by the beam transport)
Pulse repetition rate	The number of pulses emitted per second. Unit in Hz	1 shot / min
Maximum pulse energy	The pulse energy is the total optical energy of a single pulse. Since the optical energy of the pulse can be changed, the maximum pulse energy refers to the maximum possible value allowed by the system. Typically expressed in J or mJ.	1500 J (design value*)
Pulse energy fluctuations sigma	(The standard deviation of the total pulse energy fluctuating shot-to-shot. [σ_E] = J)	<10% over 60 consecutive shots @ 1 shot/min
Peak power	The peak power is the maximum occurring value of the pulse optical power. Typically expressed in Watts (from kW to PW for intense laser pulses) and typically deduced by Pulse energy / pulse duration.	10 PW (design value*)
Peak fluence on target	The peak fluence is the maximum value of the fluence on target (energy per a unit surface area) on a surface perpendicular to the beam propagation	N/A – depends on experimental setup

	axis. Typically expressed in J/cm ² or J/m ² .)	
Average fluence on target	a value of the fluence on target averaged over the whole beam (1/e ² width)	N/A – depends on experimental set-up
Contrast (ps/fs)	The contrast is a ratio of intensity (or the instantaneous power) between the main pulse and prepulses.)	1:10 ¹¹ over timescale 10ns to 20ps before the pulse (design value*)
Peak intensity on target	The peak intensity is the maximum value of the beam intensity on target (energy per a unit time per a unit surface area) on a surface perpendicular to the beam propagation axis. Typically expressed in W/cm ² or in W/m ² unit) and typically deduced by Peak power / focal spot size	N/A – depends on experimental set-up
Source size (spot)	A size of the spot from which photons are emitted in the secondary photon source.	N/A
Pointing stability	The beam pointing stability refers to the angular shot-to-shot stability of the beam. Typically expressed in mrad or urad.	<10 microrad RMS over 60 consecutive shots @ 1 shot/min
Beam diameter (at the exit from the source)	Beam diameter (at the exit from the source. The 1/e ² width of the photon beam. It will have an	58 cm at FWHM (design value*)

	indication to the spot size as well as to the peak intensity. μm ,mm units)	
Macropulse (train) length/duration		N/A
Macropulse (train) repetition rate		N/A

*Note: Some parameters are marked (design value) in case they have not been verified yet in experiment.