

TABLE 3.3

Beam parameters for the $\gamma\gamma$ option. The effective luminosity takes into account only the high energy peak of the luminosity spectrum ($E_{cm,\gamma\gamma} \sim 400$ GeV).

TESLA-500, $\gamma\gamma$		
Repetition rate	f_{rep} [Hz]	5
Beam pulse length	T_P [μ s]	950
Number of bunches per pulse	n_b	2820
Bunch spacing	Δt_b [ns]	337
Charge per bunch	N_e [10^{10}]	2
Emittance at IP	$\gamma\epsilon_{x,y}$ [10^{-6} m·rad]	3, 0.03
Beta at IP	$\beta_{x,y}^*$ [mm]	4, 0.4
Beam size at IP	$\sigma_{x,y}^*$ [nm]	157, 5
Bunch length at IP	σ_z [mm]	0.3
Geometric luminosity	L_{geom} [10^{34} cm $^{-2}$ s $^{-1}$]	5.8
Effective $\gamma\gamma$ luminosity	$L_{\gamma\gamma}$ [10^{34} cm $^{-2}$ s $^{-1}$]	0.6