

		E	N	Nb	$\epsilon_x(\epsilon_{Nx})$	$\epsilon_y(\epsilon_{Ny})$	$\beta_x$	$\beta_y$	$\sigma_x$	$\sigma_y$	$\sigma'_x$	$\sigma'_y$	$\xi_x$	$\xi_y$	$\Delta Q$	$\sigma_s$	I	SR	HG	lum	
		GeV	$10^{10}$		nm( $\mu\text{m}$ )	nm( $\mu\text{m}$ )	cm	cm	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{rad}$	$\mu\text{rad}$				cm	A	MW	%	$10^{33}$	
1	com	105.4																			
	p	275	15.0	660	16.1( 4.7)	6.1( 1.8)	41.7	4.2	82	16.1	197	382	.013	.007	.003	7.0	1.24			75	10.73
	e	10.1	30.5	660	28.9( 571)	6.13( 121)	23.2	4.2	82	16.0	353	382	.099	.091	.000	1.0	2.52	10.0			
2	com	105.4																			
	p	275	15.0	660	16.1( 4.7)	6.1( 1.8)	41.7	4.2	82	16.1	197	382	.013	.007	.001	14.0	1.24			47	6.68
	e	10.1	30.5	660	28.9( 571)	6.13( 121)	23.2	4.2	82	16.0	353	382	.099	.091	.000	1.0	2.52	10.0			
3	com	105.4																			
	p	275	11.1	330	16.1( 4.7)	6.1( 1.8)	94.4	4.2	123	16.1	131	382	.014	.005	.002	7.0	0.46			82	2.89
	e	10.1	30.5	330	24.2( 478)	3.47( 69)	62.5	7.4	123	16.0	197	217	.092	.084	.000	1.0	1.26	5.0			
4	com	105.4																			
	p	275	11.1	330	16.1( 4.7)	6.1( 1.8)	94.4	4.2	123	16.1	131	382	.014	.005	.001	14.0	0.46			54	1.91
	e	10.1	30.5	330	24.2( 478)	3.47( 69)	62.5	7.4	123	16.0	197	217	.092	.084	.000	1.0	1.26	5.0			

$\gamma$	$N_b$	freq	Volts	$\epsilon_{xN}$	$\epsilon_{yN}$	$\sigma_z$	dp/p	evsec	$N_p$	$\tau_{\parallel}$	$\tau_{\perp}$	$Q_{100m}$	$\beta_{crab}^4$	$f_{crab}$	$V_{crab}^5$	HG	Lum	eff	lum*eff	
		MHz	MV	$\mu\text{m}$	$\mu\text{m}$	cm	$10^{-4}$	eV sec	$10^{11}$	hr.	hr.	nC	m	MHz	MV	%	$10^{33}$	%	$10^{33}$	
1	293	660	394	19.86	4.72	1.80	7.0	6.50	0.80	1.5	7.3	7.8	$225^3$	1553	336	16.90	75	10.73	55	5.92
2	293	660	394	1.24	4.72	1.80	14.0	3.25	0.80	1.5	2.6	11.0	$1272^3$	1553	336	16.90	47	6.68	49	3.28
3	293	330	394	19.86	4.72	1.80	7.0	6.50	0.80	1.1	9.9	10.5	$166^3$	1553	336	11.23	82	2.89	60	1.73
4	293	330	394	1.24	4.72	1.80	14.0	3.25	0.80	1.1	3.5	14.9	$942^3$	1553	336	11.23	54	1.91	54	1.04

Note 1: Non magnetic cooling possible with  $\approx 1/3$  charge

Note 2: Magnetic cooling possible

Note 3: Only Coherent Electron Cooling possible

Note 4:  $\beta_{crab}$  is maximum value for  $10 \sigma_{crab} = 5$  cm

Note 5:  $V_{crab}$  is minimum for maximum  $\beta_{crab}$