

Electron Parameter	Desired Beam Control	Desired Beam Knowledge	Measurement or example for reference	Possible action to improve or achieve desired Beam Control
Energy Range	4.5-5.5 MeV	0.1% (~5 keV)	2.0% (worst case – orbit unknown) 0.3% (best case – orbit/stray included)	Improve PS (5mA FS ~ 0.18%), evaluate w/ new Hall probe
Energy Step	0.1 MeV	0.02% (~1 keV)	<0.15% (0.06% PS regulation + 0.13% BPM resolution for angle)	Evaluate process and w/ new Hall probe
Energy Spread	<0.06%	<0.06% (~3 keV)	9-14 keV (2K/4K test using 2D harp and 0L02 Twiss)	Implement harp to measure beam size and min. energy spread w/ 0L02
Beam Current	1 nA – 100 uA	?	BCM (1% >1 uA cal'd FC2)	Implement isolated dump + picoammeter for low/all currents
RMS sigma at radiator	1 mm	?	a) Use viewer/camera b) Meas. 0L02, propagate	Implement harp to measure beam twiss, set/know spot size w/ 0L02
RMS diverg. at radiator	Not specified	?	Not done	Implement harp to measure beam twiss, set/know divergence w/ 0L02
Position at radiator	Photons centered on collimator	0.1 mm	Used x-ray screen to center beam on radiator, and recorded BPM's in 5D line,	Procedure to transfer radiator centering to electron beam positions between each energy/configuration