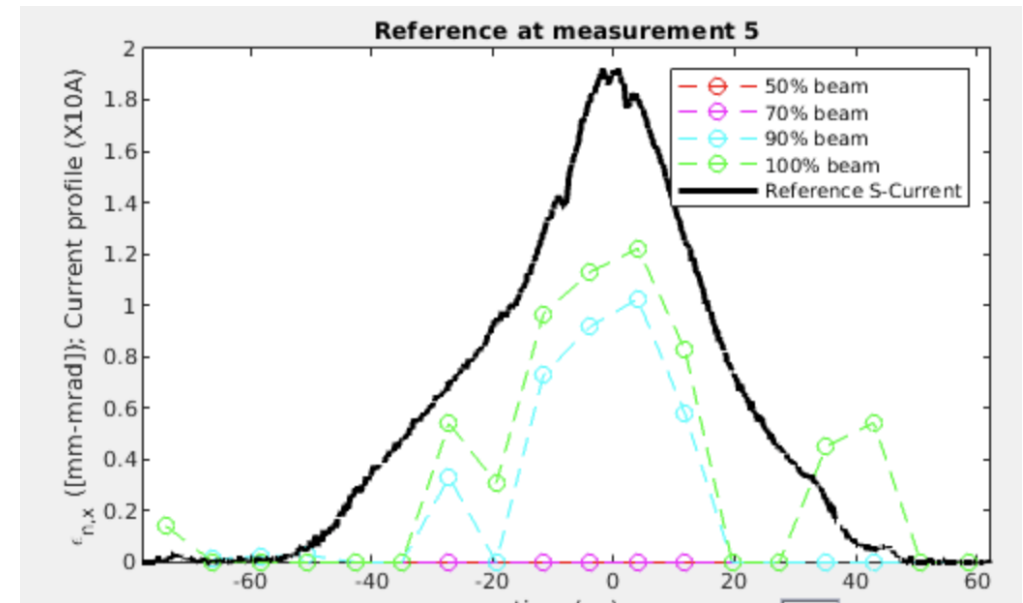


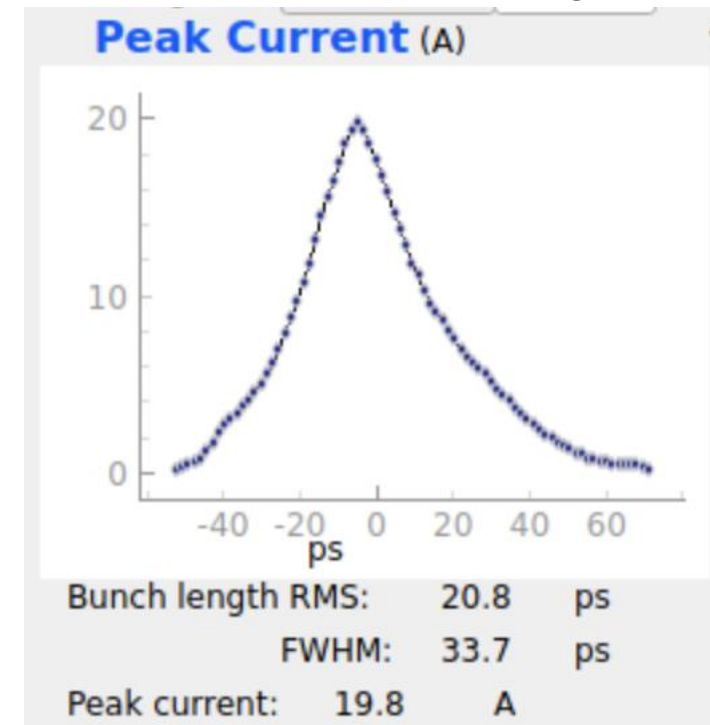
CeC status – 7/29/25

Continue to optimize beam parameters towards KPPs for cooling.

- Slice emittance for core ~ 1-1.2 μm normalized. Requirement < 1.25 μm
- Projected emittance 1.9 μm .
- Peak current for core ~ 19 -20 A
- Next step would be longitudinal tuning to minimize slice energy spread ($\text{rms} < 2\text{e-}4$) and maximize energy flatness across slices ($\text{p2p} < 1\text{e-}4$)



Slice emittance along beam



CeC gun quench/new field emitters

CeC gun was down due to quench protection (significant drop in Q, ~ 10 fold est.) when operated in higher voltages (> 700-800 kV)

- This feature developed unexpectedly and there was no sign of similar behavior earlier, gun has been up and running for the past month without problem.
- Initial suspect was something fell off into the gun, later found this might be caused by newly emerged emitters, radiation level was found at much higher level (700 kV now is comparable to 1.2 MV before)
- The plan is to extract cathode during maintenance (need 1 hour access) and try to bring gun up to normal operational voltage to perform He conditioning to restore performance.

