

Hall D

Beam Property	Nominal Value/Range	Temporal Stability over 8 hours
Spot size at target [♦] (rms) [μm]	Horizontal < 1000 Vertical < 500	Horizontal ~ 100 Vertical ~ 100
Angular divergence at target [μrad]	< 15	< 1
Current [nAmp]	1 - 2000 [#]	10%
Charge per bunch [fCoul]	4×10^{-3} - 8	10%
Bunch repetition rate [MHz]	249.5 [*]	NA
Beam position	± 1 mm	< 40 μm (with 5C11B lock)
Energy spread [♠] (rms)	2×10^{-3} - 3×10^{-3}	~ 10% of nominal (linac crested)
Beam direction	± 30 μrad	< 2 μrad (active collimator lock)
Energy range [GeV]	8.8 - 12.1	NA
Energy accuracy [♥] (rms)	3×10^{-3}	stable
Background beam halo	< 0.1%	stable
Beam availability (including RF trips)	60%	stable

'<' – 'not to exceed'

♦ Based on emittance measurement at 5C00 logged since late 2015. Straightforward tuning provides geometric emittances of: $\epsilon_x \sim 7 \times 10^{-9}$ m-rad, $\epsilon_y \sim 5 \times 10^{-9}$ m-rad.

Consistent with 900 kW beam power and limits on Faraday cup and beam stopper.

* Other frequencies, such as 499 MHz are also available.

♠ These are ideal numbers, no RF phase errors, just synchrotron radiation. This assumes phasing software running in background to minimize effects of RF curvature

♥ Set by errors in dipole field measurements only.