VUV STORAGE RING PARAMETERS AS OF JUNE 2008

Stored Electron Beam Energy	0.808 GeV
Injected Current	1.0 amp (1.06×10^{12}e-)
Lifetime @ 200 mA unstretched (stretched)	∼6 (9.8) hr
Circumference	51.0 meters

PHOTON CRITICAL WAVELENGTH (ENERGY)

Dipole Source 1.41 T $\lambda_c(E_c)$	20.3 Å (612 eV)

LATTICE STRUCTURE (CHASMAN-GREEN) SEPARATED FUNCTION, QUAD DOUBLETS

Number of Superperiods (N_s)	4
Magnet Complement	8 Bending Magnets (1.5 meters each) 24 Quadrupole (0.3 meters each) 12 Sextupole in two families (0.2 meters each)

STORAGE RING CHARACTERISTICS

Number of Dipole Ports	18
Number of Insertion Device Straight Sections	2
Maximum Length of Insertion Devices	2.25 meters
Radiated Power	19.8 kW/amp of beam
Power per Horizontal Milliradian (@ 1A)	3.1 W
RF Frequency (f_{RF})	52.887 MHz
$B\rho$	1.41 Tesla × 1.91 meters
Electron Orbital Period	170.2 nanoseconds
Number of RF Buckets	9
Typical Bunch Mode	7
Damping Times	$\tau_x = \tau_y = 13$ msec; $\tau_\epsilon = 7$ msec
Nominal Tunes (ν_x, ν_y)	3.14, 1.26
Momentum Compaction	0.0235
RF Peak Voltage with 52 MHz (with 211 MHz) (V_{RF})	80 kV (20 kV)
Design RF Power with 52 MHz (with 211 MHz)	50 kW (10 kW)
Synchrotron Tune (ν_s)	0.0018
Natural Energy Spread (σ_E/E)	5×10^{-4} ($I_b < 20$ mA)
Bunch Length (2σ)	10 cm ($I_b < 20$ mA)
(2σ with 211 MHz Bunch Lengthening)	38 cm
Horizontal Damped Emittance (ϵ_x)	160 nm-rad
Vertical Damped Emittance (ϵ_y)	≥ 0.35 nm-rad (4nm-rad in normal ops.)*

ARC SOURCE PARAMETERS

Betatron Function (β_x, β_y)	1.18 to 2.25 m, 10.26 to 14.21 m
Dispersion Function (η_x, η'_x)	0.500 to 0.062 m, 0.743 to 0.093 m
$\alpha_{x,y} = -\beta'_{x,y}/2$	-0.046 to 1.087, 3.18 to -0.96
$\gamma_{x,y} = (1+\alpha^2_{x,y})/\beta_{x,y}$	0.738 to 0.970 m^{-1}, 1.083 to 0.135 m^{-1}
Source Size (σ_x, σ_y)	536 to 568 μm, >60 to >70 μm (170-200 μm in normal ops.)*
Source Divergence ($\sigma_{x'}$, $\sigma_{y'}$)	686 to 373 μrad, 19.5 to 6.9 μrad (55-20 μrad in normal ops.)*

INSERTION DEVICE PARAMETERS

Betatron Function (β_x, β_y)	11.1 m, 5.84 m
Source Size (σ_x, σ_y)	1240 μm, >45 μm (220 μm in normal ops.)*
Source Divergence ($\sigma_{x'}$, $\sigma_{y'}$)	112 μrad, >7.7 μrad (22 μrad in normal ops.)*

* ϵ_y is adjustable