

<b>SESAME DESIGN PARAMETERS</b>		
<b>December 2006</b>		
<b>General Parameters</b>	<b>Unit</b>	<b>Value</b>
Energy	GeV	2.5
Horizontal/Vertical $\beta$ -tunes		7.23/6.19
Circumference	m	133.12
Beam height	m	1.2
Number of periods		8
Number of Dipoles		16
Bending Dipole field	T	1.45545
Bending radius	m	5.72958
Field index n		11
Betatron tunes H/V		7.23, 6.19
Natural Chromaticities H/V		-15.5 / -19.0
Momentum compaction		0.00829
Energy loss / turn	keV	589.7
Damping times ( $\tau_E / \tau_x / \tau_z$ )	msec	2.80 / 2.28 / 3.77
RMS energy spread ( $\sigma_E$ )	%	0.1086
Natural emittances ( $\epsilon_x / \epsilon_z$ )	nm-rad	25.74 / 0.2574
Betatron coupling	%	1
<b>RF Parameters</b>		
Frequency	MHz	499.954
Harmonic Number		222
Peak Voltage	MV	2.4
RF acceptance ( $\epsilon_{RF}$ )	%	1.463
Synchrotron frequency	kHz	37.18
Natural bunch length ( $\sigma_L$ )	cm	1.15
Max. current (200 bunch)	mA	400
(1/e) Lifetime for $\langle p \rangle = 1$ nTorr	hrs	16.9
<b>Optical Functions</b> [middle of Long/Short (**) straights and @ dipole port (6.5°)]		
Horizontal Beta:		
Long straight/Short straight/Dipole	m	13.61/13.30/1.00
Vertical Beta:		
Long straight/Short straight/Dipole	m	1.65/0.77/24.50
Horizontal Dispersion:		
Long straight/Short straight/Dipole	m	0.53/0.53/0.154
<b>Beam Sizes and Angular Divergences</b>		
Horizontal beam size ( $\sigma_x$ ):		
Long straight/Short straight/Dipole	$\mu\text{m}$	827.8/822.8/231.1
Vertical beam size ( $\sigma_z$ ):		
Long straight/Short straight/Dipole	$\mu\text{m}$	20.6/14.0/79.5
Horizontal divergence ( $\sigma_x'$ ):		
Long straight/Short straight/Dipole	$\mu\text{rad}$	43.5/44.0/267.1
Vertical divergence ( $\sigma_z'$ ):		
Long straight/Short straight/Dipole	$\mu\text{rad}$	12.5/18.3/13.3

(\*\*) Steel to steel length:  
 Long straight = 4.44 m  
 Short straight = 2.38 m