

CESR TA Machine Studies Task Overview

I. Experiment Description

Experimental Topic	Electron Cloud Instability Studies	
Classification*	EC	
Coordinator/ Experimenters	Billing/Dugan	Billing, Dugan, Sonnad, Ramirez, Forster
Primary Goals	Measure beam instabilities with trains of bunches and associated tune shifts of bunches within trains of bunches	

Description[†]	<p>Setup</p> <ol style="list-style-type: none"> 1. Take reference measurement <ol style="list-style-type: none"> a. 30 bunch positron train 14 nsec spacing 0.75 mA/b <p>Instability/Damping Measurements (INST/DAMP)</p> <ol style="list-style-type: none"> 2. Study Head-tail instability (INST) <ol style="list-style-type: none"> a. Conditions <ol style="list-style-type: none"> i. 2 GeV lowest emittance (Big D) ii. 30 & 45 bunches iii. Current per bunch <ol style="list-style-type: none"> 1. 0.75 mA/b iv. Electrons (follow up for Positron measurements from April 2012) v. Different Tunes for bunch 1 <ol style="list-style-type: none"> 1. fh/fv = 222.5/238.5 kHz vi. Concurrent xBSM bunch-by-bunch data vii. Low Feedback viii. 4, 8, 12, 14, 16, 20, 24, 28 ns ix. 200 kHz wide spectra b. Different Q' (3 values) 	
Special Needs/Requests		
Prerequisites[‡]	Personnel	Description
	Billing, Forster,	Establish stored beams

* Machine Studies Classifications:

- EC - Electron Cloud
- LET - Optics Correction and Low Emittance Tuning
- xBSM - x-ray Beam Size Monitor
- INST - Instrumentation (BPM development, RFA development, other)
- MDEV - Machine Development (includes injection configuration, injection tuning, custom orbit setup, instrumentation preparation, etc.)
- MREC - Machine Startup (recovering conditions after down time)

[†] Attach additional pages for experimental description if needed

[‡] Indicate other machine work that is required in preparation for this machine studies experiment.

