

CESR TA Machine Studies Task Overview

I. Experiment Description

Experimental Topic	Electron Cloud Instability & Damping Studies	
Classification *	EC	
Coordinator/ Experimenters	Billing/Dugan	Billing, Dugan, Sonnad, Ramirez, Palmer, Williams, Forster
Primary Goals	Measure & document parameters associated with beam instabilities with trains of bunches	

Description [†]	<p>Setup</p> <ol style="list-style-type: none"> 1. <u>Take reference measurement</u> <ol style="list-style-type: none"> a. 30 bunch train 14 nsec spacing 0.75 mA/b <p>Instability/Damping Measurements (INST/DAMP)</p> <ol style="list-style-type: none"> 2. Reference Study Head-tail Damping (DAMP) <ol style="list-style-type: none"> a. Conditions <ol style="list-style-type: none"> i. 2 GeV lowest emittance (Big D) ii. Single bunch iii. Current per bunch <ol style="list-style-type: none"> 1. 0.75 mA/b iv. Positrons/Electrons v. Different Tunes for bunch 1 <ol style="list-style-type: none"> 1. fh/fv = 222.5/238.5 kHz vi. Low Feedback vii. Damping of m=0, +/-1 modes b. Combination of a few Dimtel Feedback System gain commands c. Combination of a few Q'v commands 3. Study σ_v variation via xBSM vs. BPM head-tail line signals while varying V Shaker & Long Shaking 	
Special Needs/Requests		
Prerequisites [‡]	Personnel	Description

* 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.

