CesrTA Machine Studies Task Overview

I. Experiment Description

Experimental Topic	vBSM Characterization of horizontal beam size	
Classification[*]	INST	
Coordinator/ Experimenters	SW	DLR, JSh, SW
Primary Goals	Characterize vBSM resolution	

Description[†]	1. Characterize intensity dependence with neutral density filter
	2. Determine appropriate gain for low current measurement (0.1mA)
	3. Check dependence on depth of field by retracting beryllium mirror
	4. Prepare for measurement of current dependence of energy spread by testing horizontal dispersion knob at vBSM source
	5. Experiment with three different interferometer slit separation:
	   a. Measure horizontal beam size vs. beta_h
	   b. Measure horizontal beam size vs. horizontal emittance
	   c. Measure horizontal beam size vs. dispersion at source point
	6. Check the horizontal beam size from Gaussian profiles and calibrate it with interferometer. Repeat item 5a,b,c.
	
	Repeat with positrons.	

Special Needs/Requests	Positron optic box is installed in November 2011 and has not been aligned yet. It may require brown access to do the alignment.	

Prerequisites[‡]	Personnel	Description
Horizontal dispersion knobs	dlr	The knob at east (electron) is created. Need a knob at west for positron.
horizontal beta knobs	dlr	Need a knob at west for positron.
Horizontal emittance knobs	dlr	Need both east and west.

Time Requested[§]	No. Shifts	Principal Tasks
6hr / beam	1	

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[*] Machine Studies Classifications:
- EC – Electron Cloud
- LET – Optics Correction and Low Emittance Tuning
- IBS – Intra-beam scattering studies
- 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 period or access)

[†] Attach additional pages for experimental description if needed
[‡] Indicate other machine work that is required in preparation for this machine studies experiment.
[§] Indicate the principal shift topics and estimated number of shifts required

II. Machine Studies Assignments

Reserved for Project Management Team Use		
Topic ID		
Priority[**]		
Shift Assignments	**Date**	**Shift**

[**] Priority Scale:
1. Critical – results are necessary for preparation for subsequent down/run periods
2. Very high – results are strongly desired for achieving program milestones or in preparation for subsequent down/run periods
3. High – results are of immediate interest but not require
4. Moderate – results should be pursued at the first convenient opportunity
5. Low – results are not presently a high priority for either project milestones or planning