CESR TA Machine Studies Task Overview

I. Experiment Description

Experimental Topic	ODR	
Classification*	INST	
Coordinator/ Experimenters	MGB	LMB, TA, SW, SM
Primary Goals	To set up and test the CERN ODR detector	
Description†	**Preparatory Studies** • Test new steering controllers (47,48W,49,48E) • Test bumps through ODR chamber • Test radiation loss monitors w/o & w/ beam • Correct phase advances/beta functions • Correct orbit • Low Emittance Tuning for small beam size • Check v beam size controls • Check beam stability to 10 mA • Check vert scrapers with beam **Non-beam Testing** • Test replacement chamber controls • Test target insertion controls • Test target rotation controls • Test control room chamber positon readout • Test temperature readouts • Test ODR camera triggering wrt CBPM triggering **ODR Studies** • Inject 0.75 mA single bunch • Check/correct phase advance/beta-functions & coupling • Correct orbit • Measure vertical beam size • Ramp CESR • Time in BPM48AW	

* 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

	• Dump beam and retract the replacement chamber • Refill with 0.75 mA single bunch • Move in the target in steps to place beam between • the wider slit • Observe beam lifetime, downstream loss monitor • counting rates, signal on ODR camera (SR?), • Adjust vertical bumps to reduce DS radiation & • increase lifetime, measure beam position • After centering check whether insertion of V scrapers reduces DS radiation • Top off beam after retracting the target • When the beam is fully within the wider slit, make following measurements • Turn-by-turn CBPM trajectory • ODR signal • Observe the signals on the RF probes • Change Coupling 8 & 9, observe xBSM, lifetime & radiation • At the end of the studies, with the replacement chamber in place fill to 50-100 mA and observe o Any heating on the replacement chamber cooling lines o The signals on the RF probes	
Special Needs/Requests	Installation of ODR	
Prerequisites[‡]	**Personnel**	**Description**
Optics Prep	MGB, JSh	Optics (2.1 GeV Big D) correction
Installation	E-shop, Accel Techs, Riggers, et al	Installation of ODR detector chamber
Time Requested[§]	**No. Shifts**	**Principal Tasks**
6 hour shift	1	Prep Studies
8 hour shifts	3	ODR Studies

[‡] 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