

# SLAC MEMORANDUM

TO: LCLS/ESA, LCLS OPS, EOICs

DATE: 18-Jul-2007

FROM: Rick Iverson

SUBJECT: Linac/ESA electron beam startup checklist for T-493: Undulator magnetic material irradiation experiment

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Schedule: T-493 uses LCLS beam to ESA from Jul 27 to Aug 10, 2007

Purpose: To provide experimental measurement of the radiation damage sensitivity of LCLS undulator magnets.

\_\_\_\_ 1) Establish LCLS Electrons to CA11 PR-55 at 13.64 GeV.  
Primary beam: 13.64GeV, 3E+09 electrons/bunch, 1-30pps  
Energy spread = 0.02% (minimum).

\_\_\_\_ 2) These are the configs to start with. After the first shift,  
configs will be saved that are more current.

21-BSY Magnet	config NOR #54 09-Jul-07 "Last LCLS 13.6 Gev to ESA"
BSY-ESA Magnet	config NOR #486 09-Jul-07 "Last LCLS 13.6 Gev to ESA"
SLC CIDESA BPM	config NOR #149 09-Jul-07 "After linac steer and LEM"
COLLI30	config NOR #287 25-Jun-07 "wide open"

\_\_\_\_ 3) Verify that the BAS is signed off and the Beam containment items in the BAS are active.

\_\_\_\_ 4) Check that the ESA BCS and MPS are made up.

\_\_\_\_ 5) When the experimenters are ready for beam,  
-Verify that the LI23 & LI29 feedbacks are on and working.  
-Bring the beam straight ahead to PR2 just upstream of D-2.  
-\*Note: It is not necessary to degauss 50-B1. Just do "LGPS OFF".  
-Steer with CA11 XCOR 9 & 34 and YCOR 10 & 35 to zero BPMS,CB00,30.  
-Then steer with A4H & A4V to zero BPMS,CB00,50.  
  
-Go to no access, pull the vacuum valves etc.  
  
-Park the beam on the 2-9 dump.  
-Set the beam rate to 1hz.  
-Bring the beam past D-10 by trimming B1/B2 to the config value. Deactivate 2-9 kicker.  
-Touch up steering and energy until the bpms match the reference orbit listed above.  
-Call the experimenters at x2811 and have them put in screens 3PR2 and 3PR4.  
-Center the beam on 3PR2 using XCOR A28 & YCOR A29.  
-Center the beam on 3PR4 with XCOR A32 & YCOR A33.  
-Pull these profs before going to high rate.  
-Ask the experimenters if you want to go to 10Hz or 30Hz.