

SLAC MEMORANDUM

TO: ILC/ESA, PEP-II OPS, EOICs
DATE: 5-Jul-2006

FROM: Rick Iverson

SUBJECT: Linac/ESA electron beam startup checklist for ILC/ESA beam tests (T-474, T-475, T-480 & T-488)

Schedule: ILC/ESA beam tests to run in ESA from Jul 7-19, 2006

Purpose: To Study prototype energy spectrometers (T-474 and T-475), collimator wakefields (T-480), and a new experiment T-488 to study the performance of an ILC-style IP feedback BPM in a realistic EM background environment that will be created in ESA (the IP BPM is for feedback on nanosecond timescales (FONT) to stabilize collisions in the ILC). We will also continue bunch length diagnostic studies and EMI studies.

_____ 1) Establish Electrons to CA11 PR-55 at 28.5GeV.
Primary beam: 28.5GeV, 1.8E+10 electrons/bunch, 1-10pps
Secondary beam: 2-20Gev, up to 1E+07 e-/bunch
LI28 emits = "6 by 0.6" That is $X < 6.0E-5\text{mr}$, $Y < 0.6E-5\text{mr}$.
Energy spread = 0.2% (minimum).
AMPL, DR13, 13 = 40Mev (short bunch but LI10 chicane OFF)
LI02-6 Phase = -20deg, LI11-21 Phase = -16deg (short bunch) [LI09,10,17,18=0.0deg]

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

BSY-ESA Magnet	config NOR #455 26-Apr-06 "T474, T480 after y beta match"
SLC CIDESA BPM	config NOR #134 26-Apr-06 "T474, T480 after y beta match"
COLLI30	config NOR #286 26-Apr-06 "T474, T480 after y beta match"

_____ 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,
-Go to no access, pull the vacuum valves etc.
-Set the beam rate to 1hz.
-Verify that the LI29 feedback is on and working.
-Bring the beam past D-10.

*Note: It is not necessary to degauss 50-B1. Just do "LGPS OFF" and set the launch with XCOR 36 and YCOR 37 in CA11.

-Touch up steering and energy until the bpms match the reference orbit listed above.
-Call the experimenters at x2811 and have them put in roller screens 1 and 2. Center the beam on these screens using XCOR A28 & A32 plus YCOR A29 & A33.
-Sector 30 PLIC level should be 50 to 100mV. The beam emittance may need tuning if the PLIC is too high.
-Ask the experimenters if you want to go to 10Hz.
-Minimize the LI28 emittance using the LI06 and LI12 feedback setpoints.