

FACET Summary Mar 9-15

- Sat 9th
 - Continue emittance scans and Linac tuning.
 - LI16 klystrons lose triggers. Switch over to FIDO III module seems to fix problem. EP01 kicker (kicker for putting beam into positron extraction line) timing runs away such that feedback no longer works. Had to move timing by hand to get kicker working again.
 - performed ballistic and BBA measurements after quad recentering from last PAMM. Klystron 1-3 and 1-1A tripping on water faults. Flow switches adjusted.
 - Started looking at S20 wires. Performed SOPs. Continued BBA measurements. CID HV gun tripped. Reset ok.
- Sun 10th
 - BBA and emittance measurements. Klystron 1-3 still having some waveguide water trips. Start commissioning of FACET experimental area diagnostics in S20. Beam no farther than extraction line after 22:00.
- Mon 11th
 - Linac emittance tuning and LI02 stability study. Beam NRTL stopper put in after 05:30 in preparation for tour of FACET experimental area at 10:30. FACET magnets off at 10:00. Tour over at 14:00. Search S19-20 and start recovery. Loose cable found on K02. Station is more stable but will be looked at on PAMM. Overnight emittances are below (cm-mrads).

Recorded Mon. 11:15	EMITX	BMAGX	EMITX*B MAGX	EMITY	BMAGY	EMITY*B MAGY	AGE (hrs)
LI02	3.310	1.014	3.357	0.321	1.067	0.343	5.708
LI04	2.291	1.043	2.390	0.194	1.003	0.195	10.44
LI11	3.563	1.009	3.596	0.256	1.044	0.268	10.55
LI18	5.381	1.115	6.000	1.350	1.370	1.850	9.487

- Recovery from access in the afternoon. CERN BBA studies during swing. NRTL vacuum problems again. Several vacuum bursts that put in the valves. There was a water summary fault (WSF) on klystron 1-2 and a high-voltage reset (HVR) fault on klystron 1-5 that caused 1.5 hrs of program delay.

FACET Summary Mar 9-15 (pg 2)

- Tue 12th
 - Continued with CERN BBA studies. There was a trip of the NDR QD magnet string that was reset. Klystron 1-5 tripped on waveguide water fault. Reset. Started FACET instrument checkout in LI20 and continued with Linac steering studies. Still had NRTL (North Ring to Linac) vacuum trips.
- Wed 13th
 - CERN BBA studies continued. Had NRTL vacuum trips again and at 05:30 another trip with a very slow recovery. Shutoff early due to the vacuum trip and started the PAMM scheduled for 06:00. The main scheduled work was to look at the vacuum problem in the NRTL and to continue experimental setup work in the FACET area. At 8:05 there was a sight wide power dip due to a large arc that occurred in VVS 1B. The breaker in the VVS was being opened when this happened but no one was injured. The work was scheduled and all proper precautions (PPE, WPC etc.) were taken. The breaker hardware was damaged and repairs were started as soon as they could be. Recovery estimates are Thursday afternoon.
 - A leak was found in the NRTL vacuum system at a bellows that had been encrusted with sediments due to a water leak in the ceiling from years ago. The vacuum leak was sealed and two vacuum pumps were exchanged and the vacuum now looks better than it has looked for several months.
- Thu 14th
 - The vacuum in the NRTL continues to improve. Work continued on the recovery of VVS 1B and the unit was ready by end of day shift. However, We lost a pump motor at sector 23 which supplies water to FACET and LCLS. With only one out of three pumps working, LCLS had just enough cooling. Attempts were made to replace the shorted motor but were not successful. The third pump is due back from a rebuild tomorrow. Facilities will install that pump then. Able to get beam down to the 2-9 stopper but no further.
- Fri 15th
 - Tuned up LI02 emittance. Rebuilt water pump installed and up by end of day shift. Turned on rest of LINAC and got beam down to LI20. Start of low beta optics studies for the LI20 chicane. Good initial progress. Low losses through the chicane (>95% throughput). More to do.