

Weekly Report for 09/29/2014

APS Renewal and Upgrade

- Prepare a requirement for the feedthrough for Ju to contact Barth technologies. (Chih-Yuan Yao)
- Performed CST simulation based on feedback from kyrocera, and communicated with them. (Chih-Yuan Yao)
- Performed parameter scans of dual-dielectric coax and determined applicable range for the feedthrough design. (Chih-Yuan Yao)
- Performance comparison of APS-U, ESRF-II, and MAX-IV lattices (Yipeng Sun)
- Started looking high emittance ratio optics for preparing detail Touschek effect simulation. (Aimin Xiao)
- Presented kicker faults simulation results on MBA-Inj group meeting. (Aimin Xiao)
- Discussed MBA Lambertson magnet requirements with Melike (Aimin Xiao)

MCR Operations

Storage Ring Operations

- Troubleshooted S35 P0 feedback amplifier that was modified during shutdown. Did not find problems. (Chih-Yuan Yao)
- Investigated a storage ring beam instability with Vadim and Louis. The instability caused beam oscillation that starts when the thick septum starts discharging and stops after a top up shot. Recorded beam position history data. This work will be continued. (Chih-Yuan Yao)
- Assisted MCR with turning beam over to users. (Karen Schroeder)
- Assisted MCR with a problem with steering and beam loss after undoing steering. Found S27A:P0 set as OK for steering (this is now connected to Libera electronics). Set not OK and verified steering was done using P1. Also noticed at the undo the corrector range error for sector 14B:V4 went to ~6A. Found it was not in the SCR special files generated during and used to undo the steering. Louis added to SCR request file. (Karen Schroeder)
- Investigated and assisted the MCR with recovery for some of the beam losses. (Karen Schroeder)
- Assisted MCR with diagnosing problems with BPMs and to determine if they should be removed from orbit correction. (Karen Schroeder)
- Made new SBPM Operator Preferred file to capture the S35 and S27 Grid X-ray BPM gains. Sent info to Bing-xin Yang about when the files were restored and that a new operator preferred file would need to be made if the gains changed. (Karen Schroeder)
- Did individual gap scans during User Operations to update Gap Feedforward tables if a User requested to restore their X-ray BPM to orbit control immediately after a steering. (Karen Schroeder)

Booster Operations

- Planned booster corrector water flow test with Ralph Bechtold and ME group. (Chih-Yuan Yao)
- Tuned up booster and PAR beam during start up. Revolved the following issues with RF group: PAR fundamental cable delay change that caused tuner and phase loops problem. Booster RF5 forward power insufficient. (Chih-Yuan Yao)

MCR Operations administrative/misc.

- Attended a veterans job fair to recruit candidates for the operator posting. (Randy Flood)
- Approved operators' time cards (Randy Flood)
- Approved vacation requests, set up coverage and updated the online schedule (Randy Flood)
- Approve CTLs, IT and Other work requests (Randy Flood)
- Reviewed updated procedures for inclusion in operator required reading. (Karen Schroeder)
- Compiled the downtime report and presented to OPS Directorate. (Karen Schroeder)
- Reviewed and approved non-RSS SR work requests. (Karen Schroeder)

APS Machine Studies

Storage Ring Studies

- Participated in SR study to calibrate the newly installed FO BLM in ID1. Had difficulty with data-collecting scope which was not clear until after the study. Study was rescheduled. (Jeff Dooling)
- Recorded injector losses with the FO loss monitor in S1. Saw large single-turn, multi-bunch signals on this detector. (Jeff Dooling)
- Simulation and comparison with measurement on APS storage ring kick aperture and injection efficiency (Yipeng Sun)
- Discussed MCC repairs with Kailus. Asked him to send the information on electrical distribution panels to be locked out to Doktoczyk for distribution to appropriate personnel. Discussed User sectors affected by shutdown pumps with Bechtold and passed the information on to Glagola. (Karen Schroeder)
- Performed gap scans to update Gap Feedforward tables and restored X-ray BPMS to orbit control configuration which had been removed during steering. (Karen Schroeder)
- Compiled the beam-related portion of the Machine studies schedule and updated the non-beam portion with last minute emergency requests. (Karen Schroeder)
- Checked CPU and IEX working status. (Aimin Xiao)

Booster Studies

- Performed 1Hz booster BM regulator unclamp mode test with Tony. I found the pulse width variation is lower in this mode but the overall ramp stability is worse than 2Hz normal operation mode. (Chih-Yuan Yao)

Linac Studies

- Discovered that a time change was required in the modulator trigger timing do too the replacement of the linac modulator thyratrons. We discovered at startup the indicated klystron and SLED forward power had to be much higher to meet the 375MeV energy. We have gone to a solid state from a gas filled tube. (Stan Pasky)
- We will have to make the same changes to Linac L3 modulator when in Mode 2. This will be tested during Machine studies on Oct. 20th. (Stan Pasky)

APS Machine Research and Development

Storage Ring Research and Development

- Contacted SLS for the ADC/DAC board development as an alternative to Tony Scaminachi's work. It is likely that Tony's design will not be realized due to his departure. (Chih-Yuan Yao)

Booster Research and Development

- Troubleshot and corrected a booster ramp stability problem during energy saving mode reported by Tony and Ju. It was determined that increasing the filter bandwidth to 240 Hz or higher after switching the ramp points for 2048 was the cause of the instability. (Chih-Yuan Yao)

Linac Research and Development

- Attended PC Gun meeting and presented estimate of time requirement necessary to align laser to the gun: minimum of 32 hrs with minimum of 4-hr blocks. Submitted work request 34281. on October 1. (Jeff Dooling)
- Held meeting to discuss pressurizing the transport line between the laser room and linac tunnel. Want to raise the pressure limit of the line from 0.5 to 5.0 psi. Line is filled with Helium. (Jeff Dooling)
- L6 was needed to rf condition a vendor rf window. Prior to starting additional work was required for machine protection system. This included changes to the vacuum screens as well as the interlock display. (Stan Pasky)
- Have also spent time preparing the PCGun for operations. Creating PEMtools and verifying machine protection for L3 and the gun are sufficient. (Stan Pasky)

ITS Research and Development

- Majority of my time was spent performing 3G1 stress testing to 300 ma 2hz at 1 us pulse width. It has survived multiple cool down and startups at 300 mA. After the Stress Test was completed, I'm now slowly raise the current over the last week to 500mA so we can demonstrate operation at that level for Radia beam project. (Stan Pasky)

Other Research and Development

- Attended RadiaBeam planning meeting; requested that W. Jansma scan the back plane of the gun to compare with measurements made in 2011. (Jeff Dooling)
- This test was completed by week's end with the result that the gun back plane had not changed. (Jeff Dooling)

APS Machine Software

Storage Ring

- tested 2D SR grid xbpn calibration scan with Bingxin Yang (4 hours), script worked; but the slow scan should be moved to the start position and then scan, changed the code to do this. (Hairong Shang)
- updated SCU0 FF table per Kathy's request. (Hairong Shang)
- added restore x/y tune delay from SCR to APSMeasureTunes. (Hairong Shang)
- debugged and tested SR mobo gap scan PEM during machine study, however, did not find any problem. It turned to be channel access in sector 19 due to the bad cable. Added displaying step

messages to status window to help debugging, and catching error statement to read pv statements. (Hairong Shang)

- continue working on SR grid xbpm calibration software development. (Hairong Shang)
- fixed the "Undo" button of steering pem which caused the beam dump because of sending zeros to bad correctors when that corrector was "on" -- ready for test. (Hairong Shang)

Injectors

- debuged and fixed the treescreens emittance measurement script, the problem was that it has extrac "trace" command in the matching.ele file, commented it out and fixed the problem. (Hairong Shang)
- added catch error statement to reading pvs to be able to catch the channel access errors and dsisplay it. (Hairong Shang)

General

- regenerated SR downtime for 2013-Run3 which created 24 more hours downtime, need to check the output of SRFillHistory. Recomputed the station downtime after this fix. (Hairong Shang)

IOC/EPICS/Controls/Linux/Solaris/Linux Clusters/Data Loggers/Simulation software

- Administer the EPICS CVS repository to ensure current versions are installed and conflicts are tracked down and eliminated. (Randy Flood)

Publications, papers and report

- Performance comparison between APS upgrade lattices, ESRF-II and MAX-IV lattice, AOP-TN-2014-049 (Yipeng Sun)

Meetings, workshops, conferences, committees, LMS related, and reviews

- Attended Floor Coordinators pre-run briefing meeting and provided them information regarding snubbers, air handler problems, etc. (Karen Schroeder)
- Attended shutdown close-out planning meeting. (Karen Schroeder)

Safety and Required Training

- Attended Day Force training. (Jeff Dooling)
- Attended WBS training (Karen Schroeder)
- Attended CPR training (Karen Schroeder)

Miscellaneous

- Assisted Lee Teng to setup his home computer network and e-mail access. (Chih-Yuan Yao)
- Administer multiple mailing lists and the elegant forum (Randy Flood)
- Completed performance appraisal and submitted. (Karen Schroeder)
- Continue on FY14 annual work appraisal. (Aimin Xiao)
- Review PRSTAB paper. (Aimin Xiao)