

Pohang Light Source Complete System and Commissioning

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Main topics of the presentation

- Complete system project properties
- Delivery and installation
- Control system Software
- Commissioning assistance
- PLS-II Commissioning status (courtesy of : Jin Won Lee(PLS))
- General observations

Complete system project background and challenges

- Background
 - PLS to PLSII upgrade tight schedule with fixed commissioning date
 - Dismantling the machine in december 2010
 - Commissioning planned for July 2011
 - Limited number of people at PLS
- Challenges
 - Transition of PLS requests (problems) into project requirements
 - 8800km distance (9630500 yards)
 - Planning and coordination on both sides
 - Visit preparations and planning (on-site work)



Project goals

- Replace 96 analog BPMs with Libera Brilliance
- Develop epics based Control System GUI
- Integrate Libera units to the control system
- Transfer knowledge for Libera use to PAL staff
- Assist at PLS-II commissioning
- Assist at fast global orbit feedback integration

Project timeline 1/8

- First batch of 55 units, clock splitters and cables delivered; december 2009



Project timeline 2/8

- On-site installation and configuration of the first batch on PLS; May 2010
 - Health, configuration and functionality tests
 - Measurements on the beam



Project timeline 3/8

- Second batch of 48 units, clock splitters and cables delivered ; November 2010



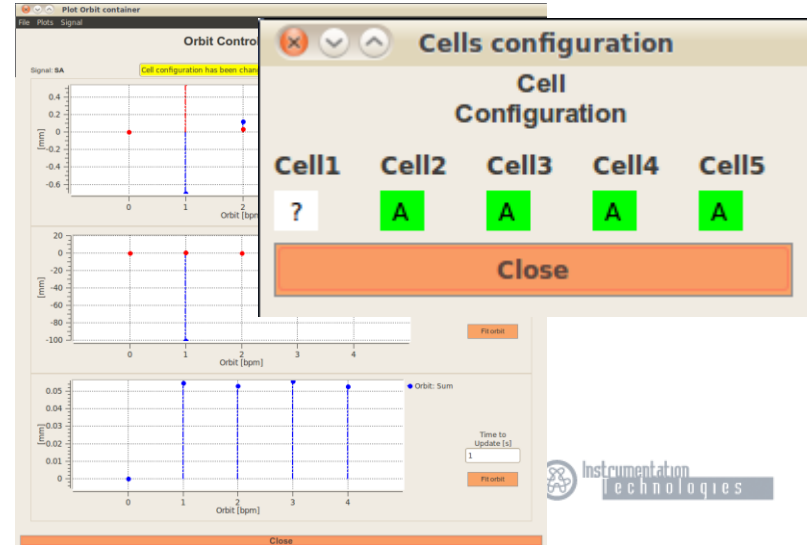
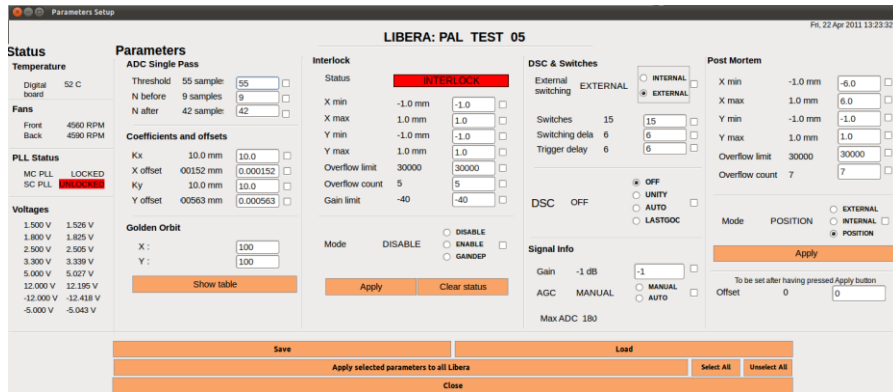
Project timeline 4/8

- PLS to PLS-II re-configuration of first batch of Libera units January 2011



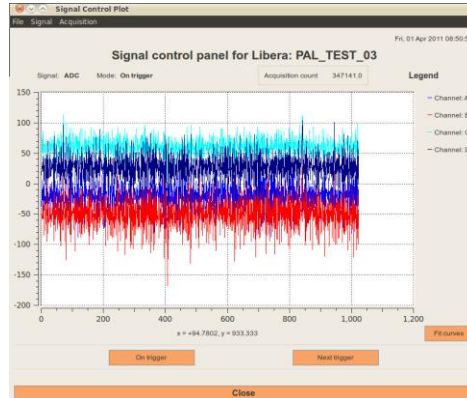
Project timeline 5/8

- Finished epics based control system GUI software; May 2011
 - EDM (Exstensible Display Manager) first, then because of user request Epics Qt4 Phyton based solution was implemented
 - set/save/load Libera parameters, orbit plots, system state semaphors...



Project timeline 6/8

- Installation, configuration and integration to control system after PLS to PLS-II upgrade; May 2011
 - Libera software upgrade to the latest release (feature pack 2011)
 - Control system GUI installation in the control room
 - GUI functionality verification and longterm test



Project timeline 7/8

- Commissioning assistance; July 2011
 - Real-life use of instrument
 - Benefits of single pass data stream for first turn measurements
 - Helping with correct instrument parameters settings
 - Gaining knowledge about machine physics that can be done using different acquisitions
 - Managing 96 Libera units
 - Automation of parameter setting
 - Automation of SW upgrades
 - A chance to spread knowledge about Libera among different accelerator divisions
 - Unpredictable turn of events turned assistance into on-site Libera training

Project timeline 8/8

- Good news from PLS (quote from Jin Won Lee): 5th of August
 - “We succeeded in storing 6mA beam in the storage ring yesterday night. Your Libera turn key solution was very useful for the operation people to reach this successful result.”

Contract signed	1st batch delivery	1st batch installation	2nd batch delivery	PLS to PLS-II re-configuration	Control system GUI finished & installed; 2nd batch installed	Commissioning and first beam
November 2009	December 2009	May 2010	November 2010	January 2011	May 2011	July 2011

Libera commissioning summary for PLS-II

- 96 LiberAs for the PLS-II storage ring
- successful first turn measurement
- successful finding of single pass orbit
- successful measurement of turn-by-turn orbit
- successful finding of slow acquisition (SA) orbit
- first turn measurement and single pass orbit of Libera were very useful for the operation people to make their initial beam commissioning very successful

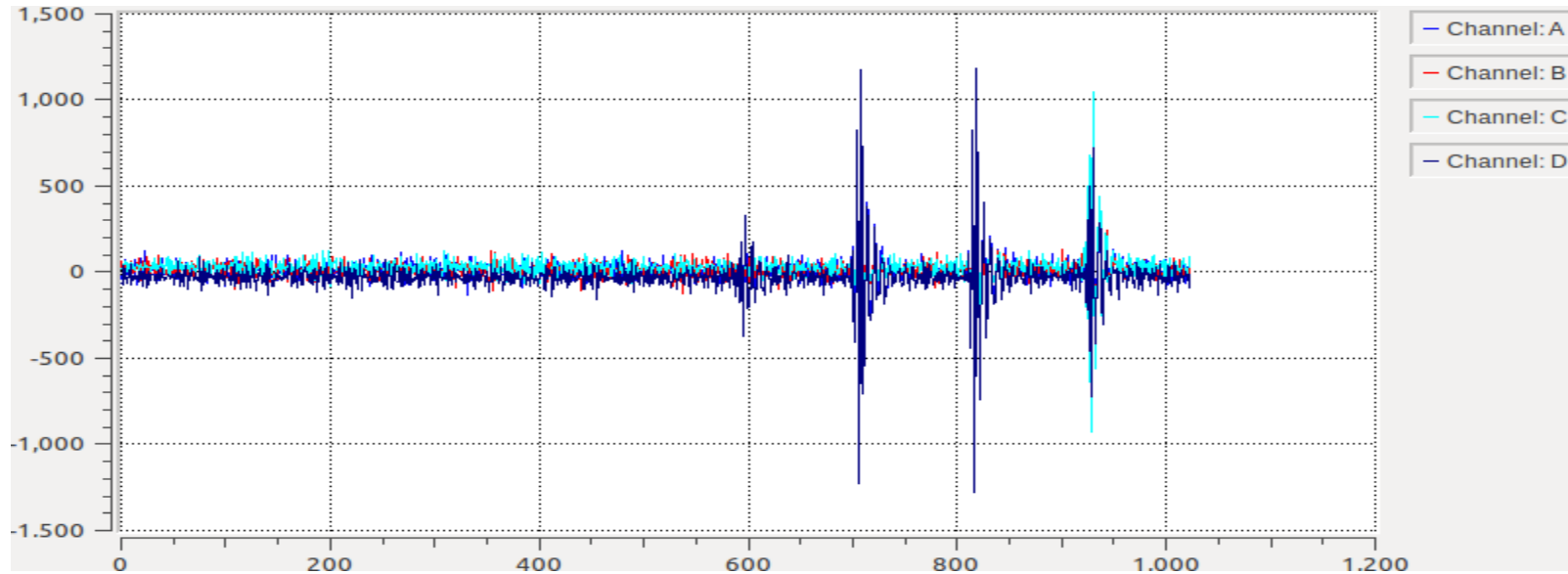
Libera Installation for PLS-II Storage Ring

Libera

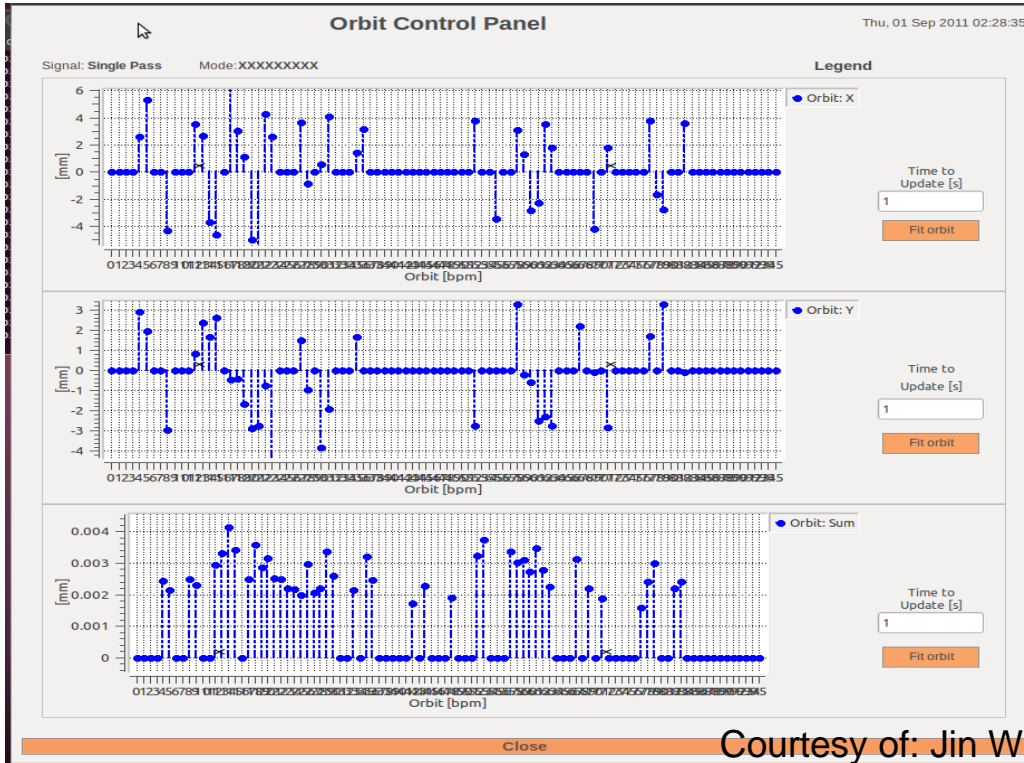


- total 96 Liberass for PLS-II storage ring
- 8 Liberass in each of 12 sectors

Libera first turn measurement



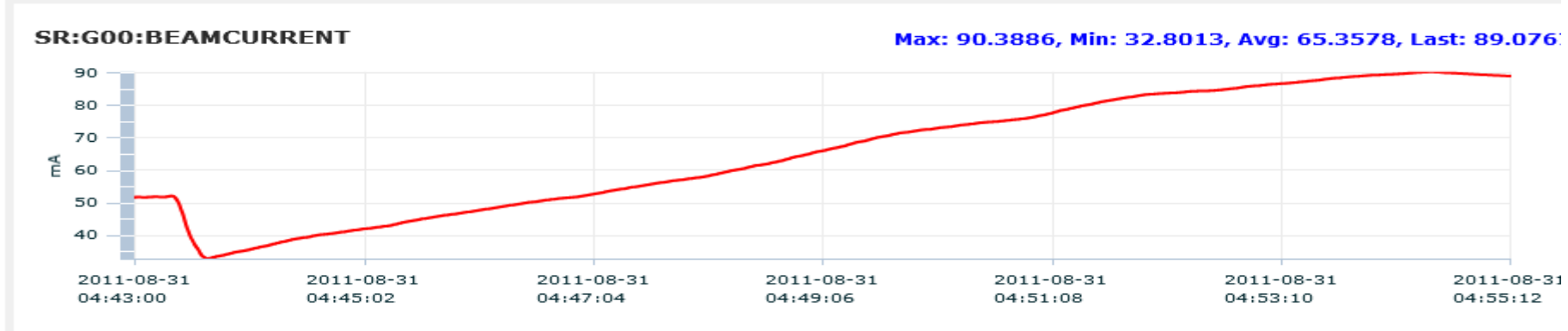
Libera single pass orbit



Beam commissioning status

- Beam commissioning start : July 1st
- Success of first turn of beam : July 1st
- Beam current achieved : 90 mA at Aug 31

Attachment 1: [beam_current31082011.PNG](#) 16 kB Uploaded 8/31/2011 8:03:49 AM | [Hide](#) | [Hide all](#)



General observations

- Detailed transition of user requests (problems) into project requirements results in a controlled project scope
- On-site experience was very beneficial for PLS and Instrumentation Technologies people
- Dividing the project into smaller projects with milestones helped keeping project within defined timeframe
- Well defined visit plan – task list with detailed day-to-day schedule helped both sides maximizing visit output

Thank you for your attention!