

Report: Laser Status for April Commission & Global Run

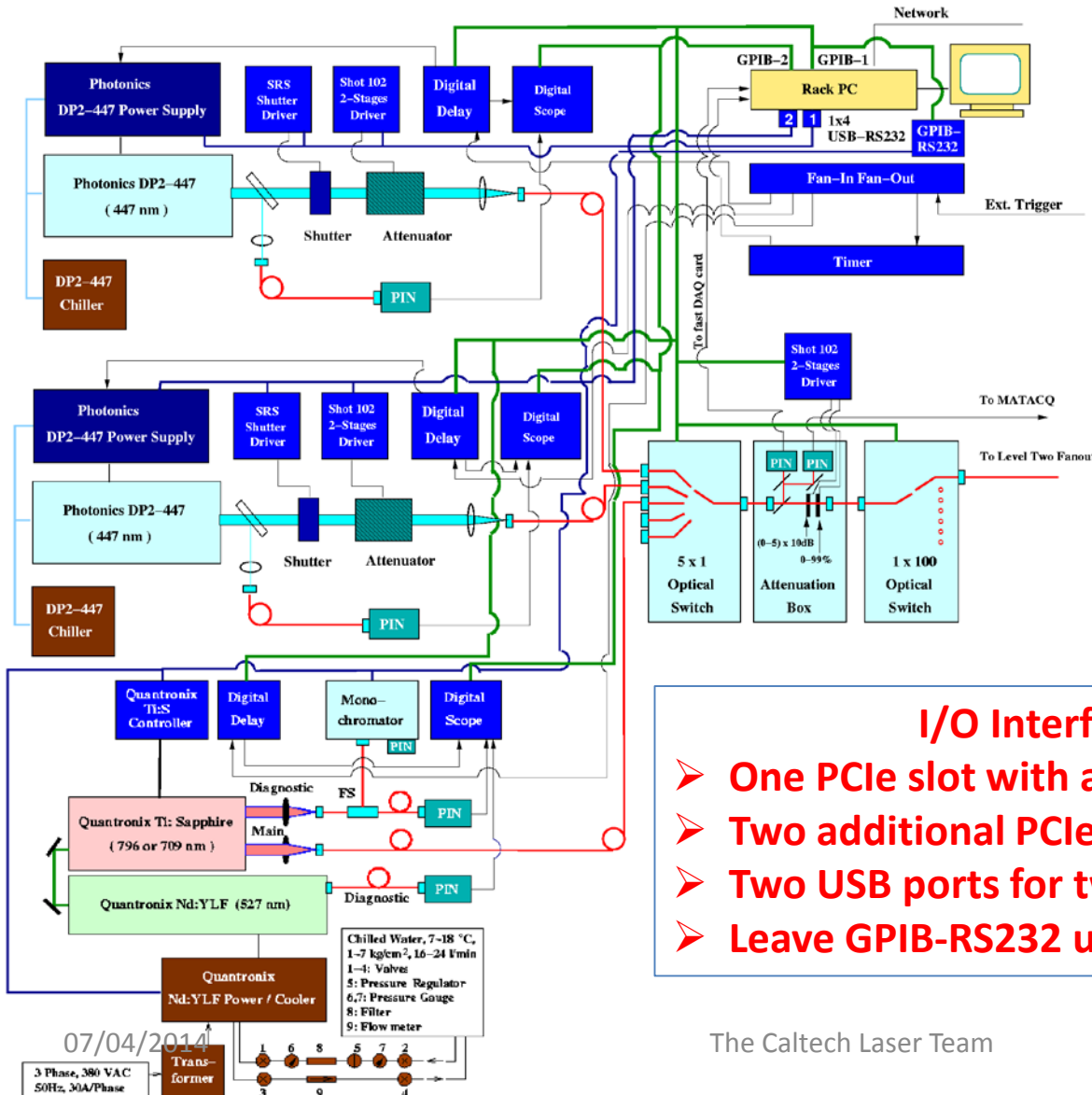
The Caltech Laser Team

April 16, 2014

A Brief Summary of the April Commission

- ✓ Following original plan:
<https://indico.cern.ch/event/301864/contribution/6/material/slides/0.pdf>
the 2nd DP2-447 (SN:12-658) is commissioned at P5 from April 2 to 7. Its output power is the same as that measured at Caltech.
- ✓ A new laser control and DAQ software is installed in a CERN rack-mounted PC (Dell R720) which will replace three PCs used during the LHC Run I.
- ✓ A test run of 11 hrs shows that both DP2 lasers meet the specification and have good stability.
- ✓ The fast monitoring card was found not stable with PCIe-PCI converter in R720, more work and test are needed.
- ✓ To minimize uncertainties the old DAQ with desktop PC is used for the global run this week. The new DAQ and the rack mounted PC will be used after the global run.

The new control and DAQ program is installed at the new racked mounted PC



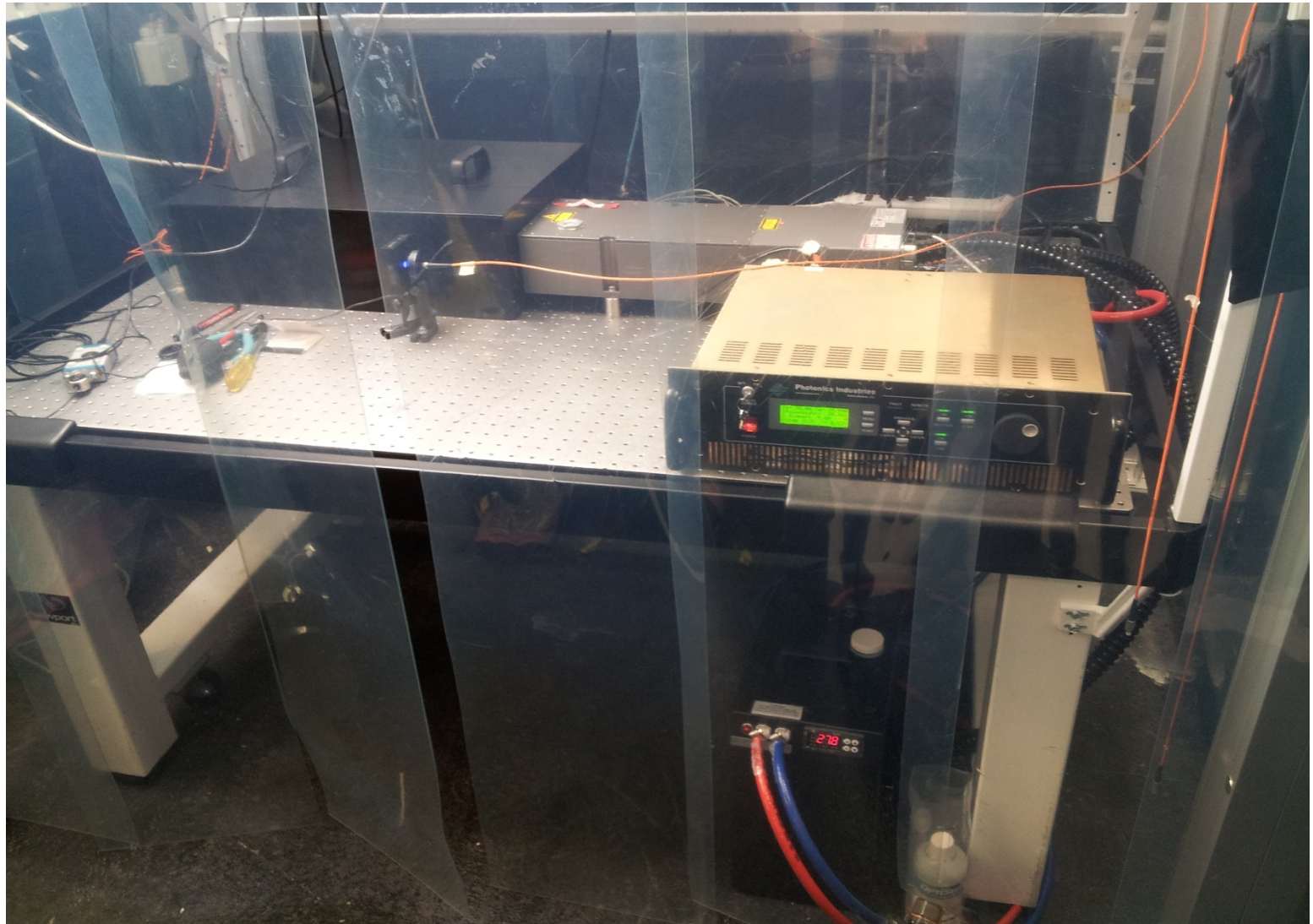
Two DP2 Blues & One Quantronix IR

Three PCs were used in 2012 for slow and fast monitoring and the 1st DP2. They are replaced by one racked mounted standard PC Dell R720 supported by CMS.

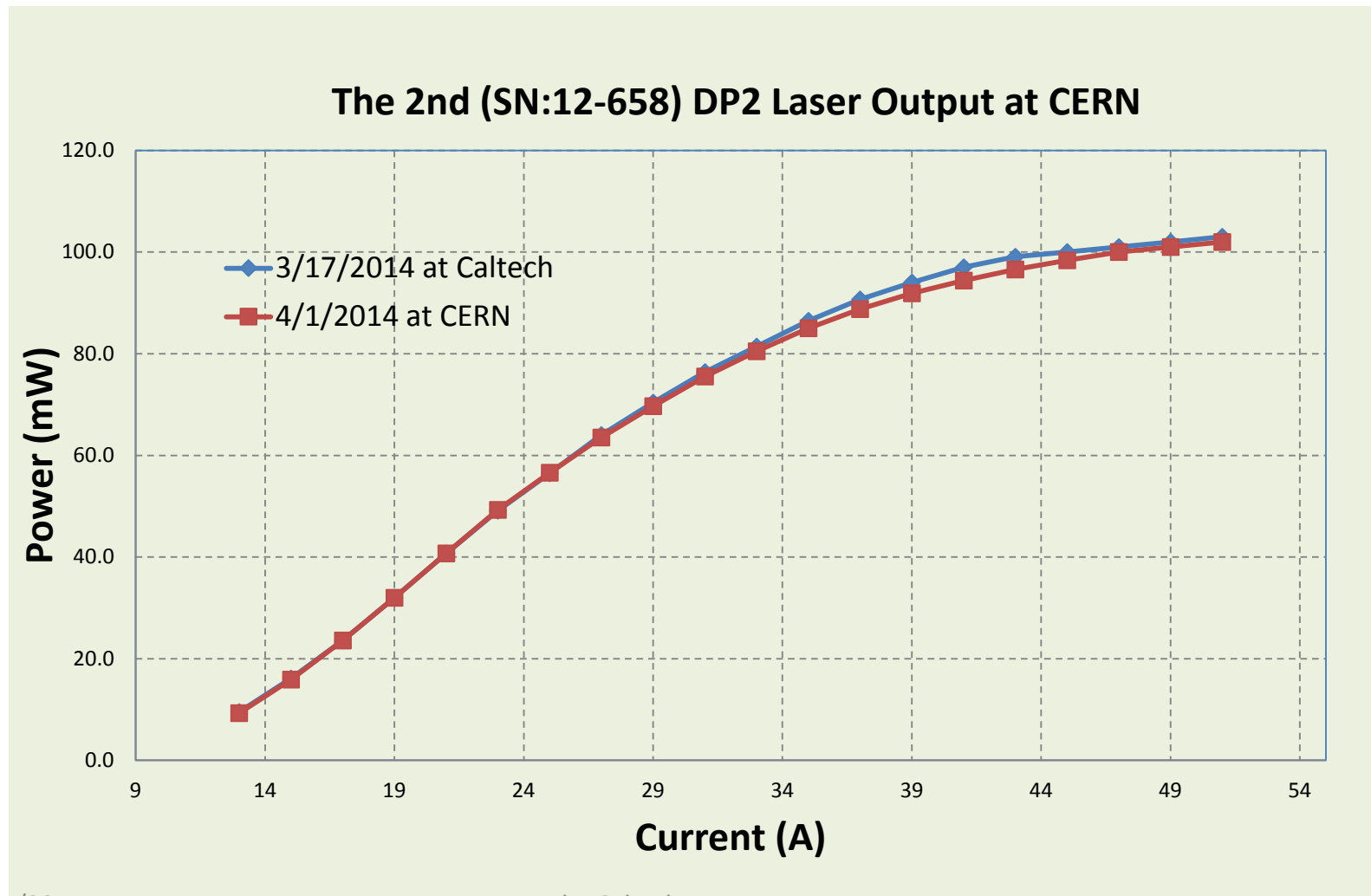
I/O Interfaces for Three Lasers

- One PCIe slot with a convertor to PCI for fast monitor
- Two additional PCIe slots for PCIe-GPIB
- Two USB ports for two DP2 1 x 4 USB-RS232
- Leave GPIB-RS232 unchanged for the IR

The 2nd DP2 is installed at P5

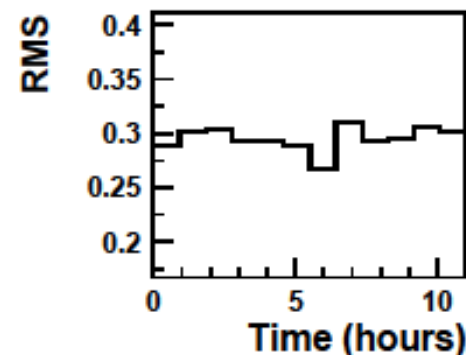
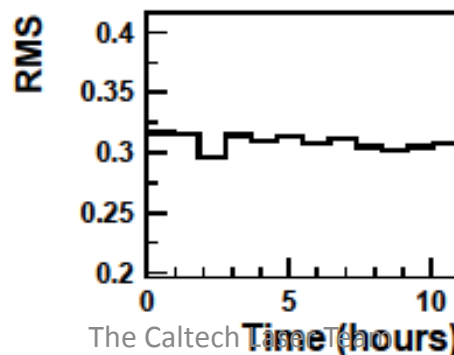
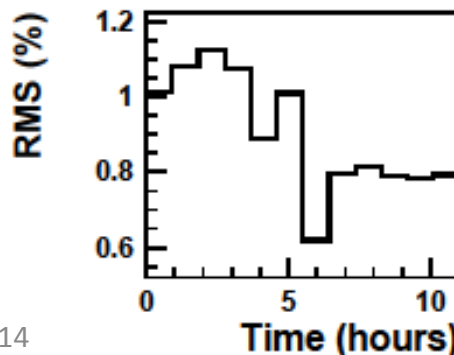
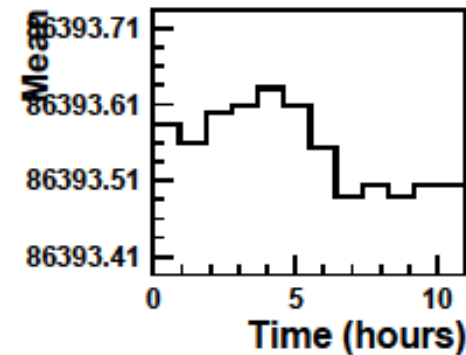
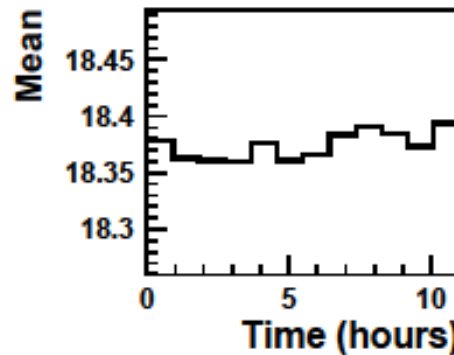
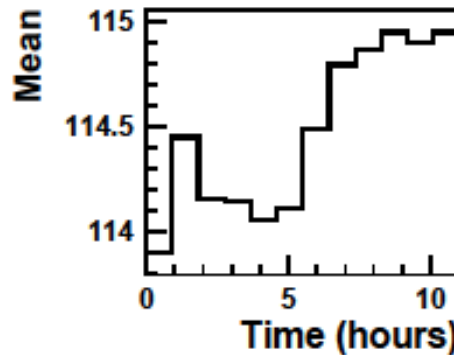
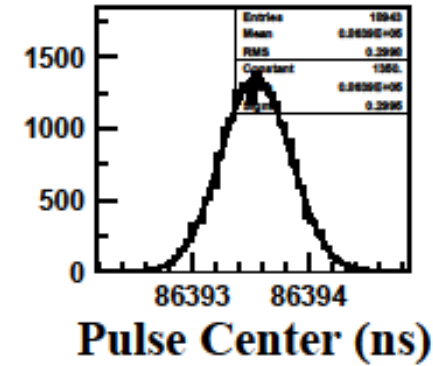
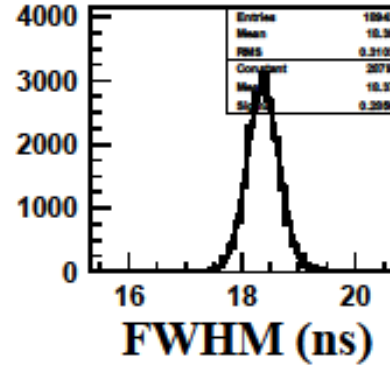
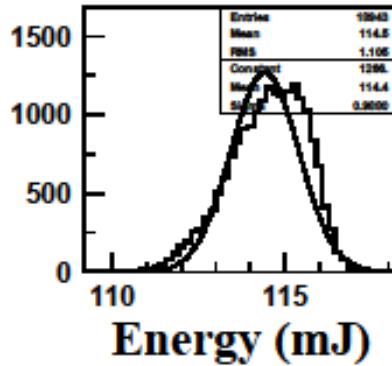


Laser Power is Consistent with that Caltech



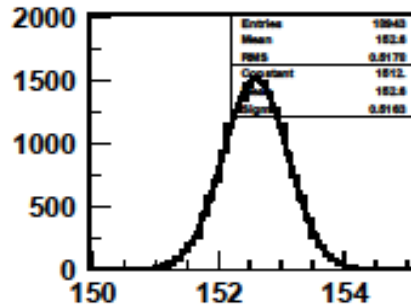
An overnight run @40A: 1st DP2 laser

1.0%/1.6%/0.3 ns stability for pulse energy/with/timing

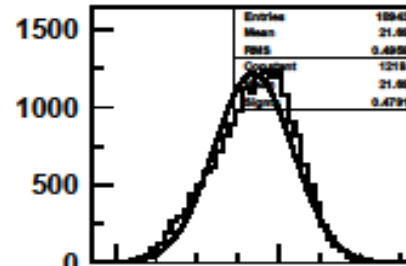


An overnight run @40A: 2nd DP2 laser

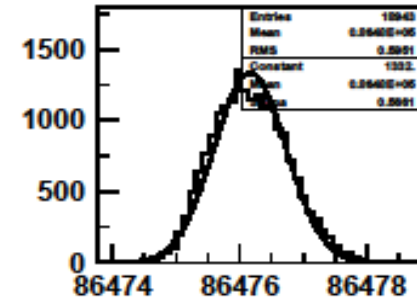
0.4%/2.3%/0.6 ns stability for pulse energy/with/timing



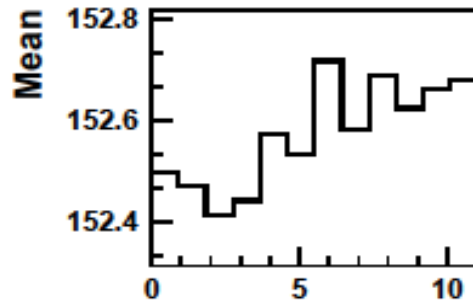
Energy (mJ)



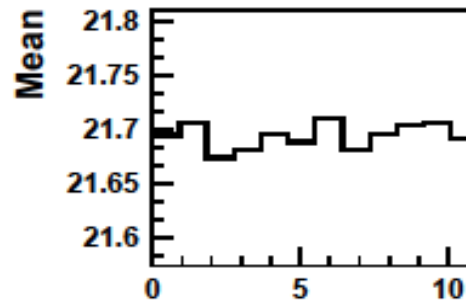
FWHM (ns)



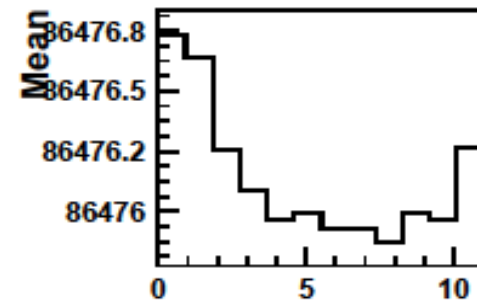
Pulse Center (ns)



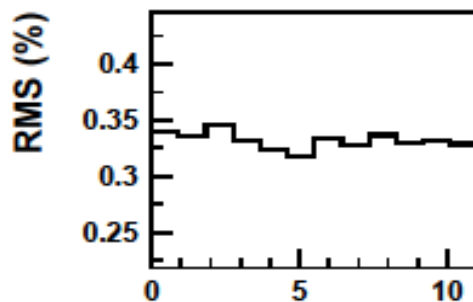
Time (hours)



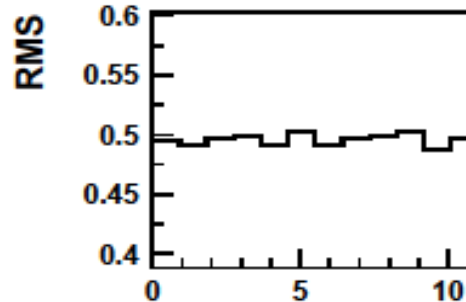
Time (hours)



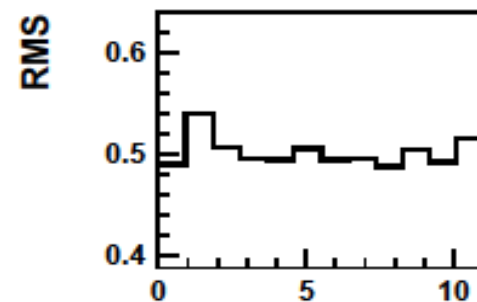
Time (hours)



Time (hours)



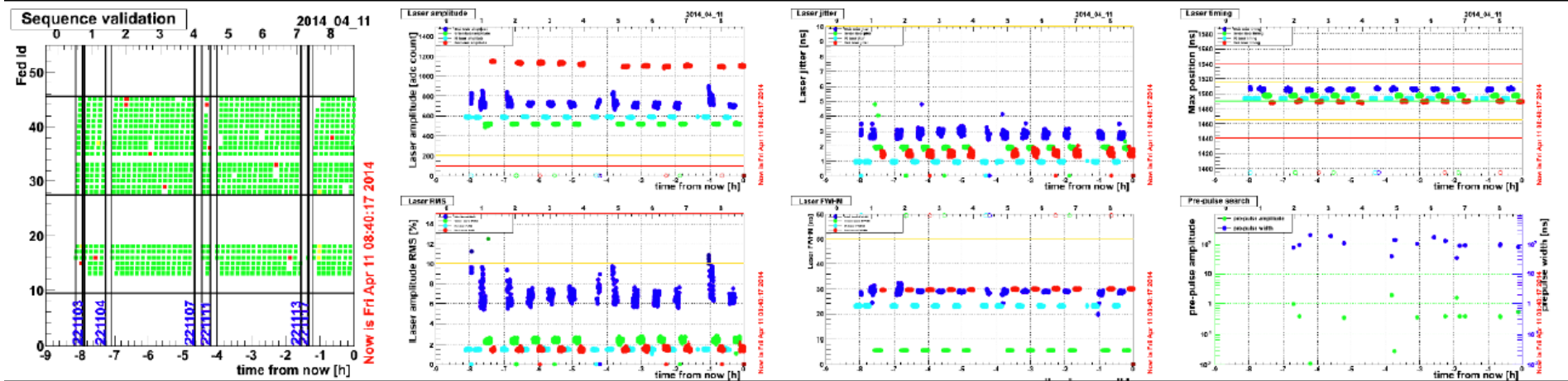
Time (hours)



Time (hours)

MATAQ Result for Global Run

April 11, 1st DP2



April 14, 2nd DP2

