

XFEL Machine Status

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5 May 2017

Accelerator Status - Activities Last Week



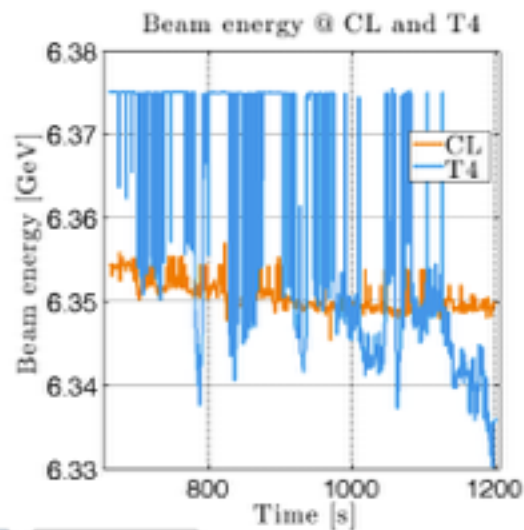
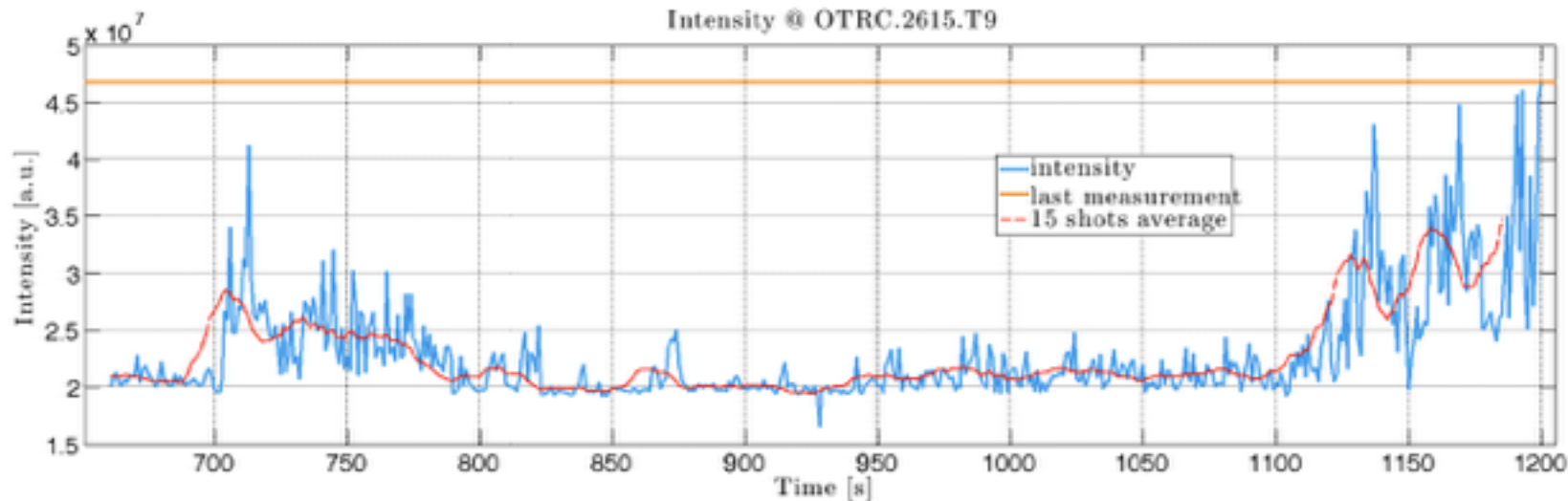
2

- Interlock in XTD2/4 reset after access on Thursday
- Beam operation in XTD2/4 started directly afterwards
- Transmission through SASE1/3 was achieved in a few hours
- Saturday, 29 April, Undulators were closed for the first time
- Search for lasing was a bit more tricky than expected
 - Operation of undulators, phase shifters and quad movers was rather tricky
- Search for lasing at 11 GeV continued over the long weekend
- On 2 May beam energy was then reduced to 6.4 GeV

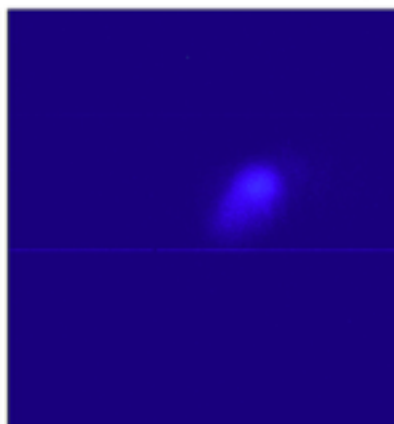
Plots in the logbook (2 May 22:50)



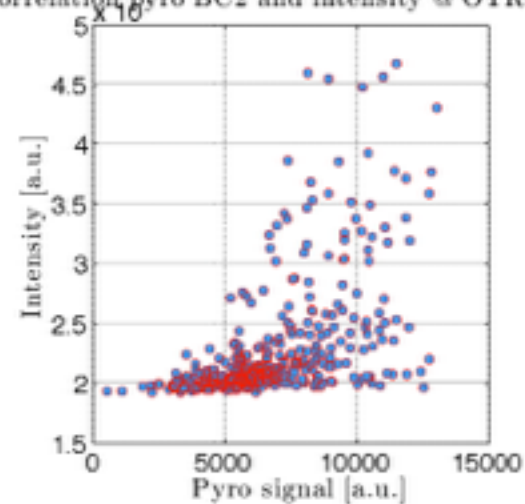
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Photon beam @ OTRC.2615.T9



Correlation pyro BC2 and intensity @ OTRC.2615.T9



Biggest X-ray laser in the world generates its first laser light

With its first lasing, the European XFEL reaches the last big milestone before the official opening

In the metropolitan region of Hamburg, the European XFEL, the biggest X-ray laser in the world, has reached the last major milestone before the official opening in September. The 3.4 km long facility, most of which is located in underground tunnels, has generated its first X-ray laser light. The X-ray light has a wavelength of 0.8 nm—about 500 times shorter than that of visible light. At first lasing, the laser had a repetition rate of one pulse per second, which will later increase to 27 000 per second.

European XFEL Managing Director Prof. Robert Feidenhans'l said: "This is an important moment that our partners and we have worked towards for many years. The European XFEL has generated its first X-ray laser light. The facility, to which many countries around the world contributed know-how and components, has passed its first big test with flying colours. The colleagues involved at European XFEL, DESY, and our international partners have accomplished outstanding work. This is also a great success for scientific collaboration in Europe and across the world. We can now begin to direct the X-ray flashes with special mirrors through the last tunnel section into the experiment hall, and then step by step start the commissioning of the experiment stations. I very much look forward to the start of international user operation, which is planned for September."

Next Steps



- This so-called “* *First evidence of the exponential gain at 1.3 keV*” prompted
 - Press event yesterday in BKR
 - Shift of the access from Thursday morning to Thursday afternoon
 - Decision to switch off the machine over the weekend
- Next steps

Accelerator Plans for next days

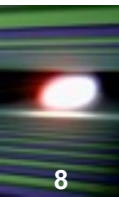
05/05 Fr M	No beam operation, Acces to TLD for leak search, Temporary access to T2-T4 possible
05/05 Fr A	No beam operation, Acces to TLD for leak search, Temporary access to T2-T4 possible
05/05 Fr N	No beam operation, tunnels closed
06/05 Sa M	No beam operation, tunnels closed
06/05 Sa A	No beam operation, tunnels closed
06/05 Sa N	No beam operation, tunnels closed
07/05 Su M	No beam operation, tunnels closed
07/05 Su A	No beam operation, tunnels closed
07/05 Su N	No beam operation, tunnels closed
08/05 Mo M	Beam operation to T4D 11 GeV, 1 bunches, 0.5 nC, 10 Hz
08/05 Mo A	Beam operation to T4D 11 GeV, 1 bunches, 0.5 nC, 10 Hz
08/05 Mo N	Beam operation to T4D 11 GeV, 1 bunches, 0.5 nC, 10 Hz

Next Steps Cont'd



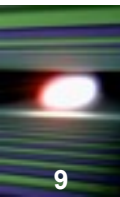
- XTD10 is open now until this afternoon
 - Installation activities can continue
- PSPO is going to preparing a plan/time estimate for the remaining work
- Machine operation resumes on Monday
- Photon Beam Line Commissioning starts on Friday 12 May
- A lot of work went into getting all photon components operational
 - We should make sure that the undulator experience is not repeated!

Organisational Remarks



- The 09:30 daily dispatch meeting for SASE1 Readiness shall move to a Mo/Wed schedule.
- On Fridays we continue the SASE1 Readiness Meeting
- The followup/monitoring by M. Aresté currently will also move to Fridays
- The Monday dispatch meeting will take place in the DESY BKR at 09:00 starting 15 May
 - A van will leave XFEL at 08:30
 - The van will return to XFEL around 10:00

Final remark on controled (ZZ) access



- On Thursday 2 colleagues broke the interlock in XTD2 while using the ZZ procedure
 - This is annoying as searching the tunnels takes a lot of time and only 10 people at DESY are currently trained
 - We shall train XFEL colleagues soon
- After a discussion with DESY the following was agreed:
 - People who have not done the ZZ procedure will only go in with a person that has experience.