



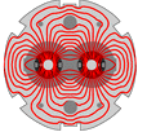
Friday to Saturday

- 09:00: Cryogenics all OK. Preparing pre-cycle.
- 10:00: Pre-cycle started.
- 11:30: Pre-cycle finished.
- 14:00: Beam back – 60 A power permit lost
- 16:00: Beam back. Chromaticity adjustments. Beta beat. Orbit feedback tests. LSA bugs.
- 21:00: Ramp with beam to 1.18 TeV
 - Lost beam 2 after a couple of minutes – low chromaticity
- Overnight
 - Totem interlock tests
 - RF adjustments for higher intensity (Philippe)
 - Aperture



Saturday

- TOTEM test successful
 - All case studies were tested and the interlock logic is OK for all of them.
 - Results of tests documented online with snapshots. All cases associated to beam dumps are also documented by global PM events
- Philippe who finished the RF adjustments in SR4:
 - The Front-End of the phase loop has been adjusted to prepare for bunch intensity increase.
 - Both rings can now take at least $5E10$ single bunch. Exactly what intensity limit will be clarified on Monday...Hopefully up to nominal.
 - With these settings we can still deal with single-bunch pilot $5E9$ OK. However how far below $5E9$ will be clarified on Monday.



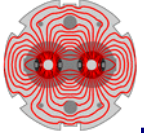
Saturday to Sunday

- 07:00: Studies with AC dipole.
- 11:00: Beam setup, loss optimization, 2 RF cavities restarted. LHCb magnets turned on. Orbit corrected.
- 16:00: Beam tuning of pilot bunch: lifetime $> 125\text{h}$ both beams.
 - Emittance growth studies
- 17:00: Injection of several single bunch intensities (pilot, fat pilot, half nominal): $5\text{e}9\text{-}6\text{e}10$.
 - Pilot ($5\text{e}9$) and fat pilot ($2.5\text{e}10$) OK with very small losses.
 - Achieved injection of "half nominal" with $3.5\text{e}10$ p into beam 2.
 - Two injections of "half nominal" with $3\text{e}10$ p (B2) and $6\text{e}10$ p (B1) produced significant losses and BLM triggered beam dump
- 21:00: LHC beam quality checks in SPS and TL.
- 22:30: Reinjection LHC. Halo stability check.



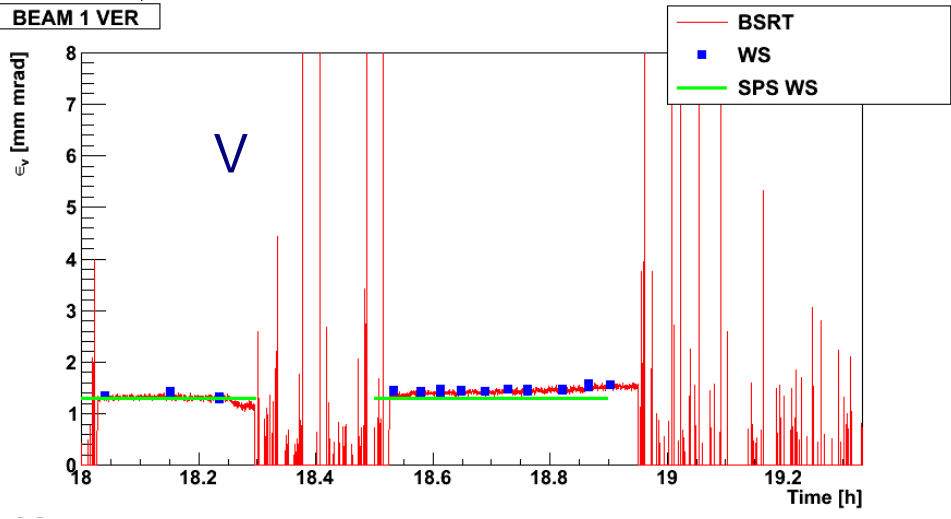
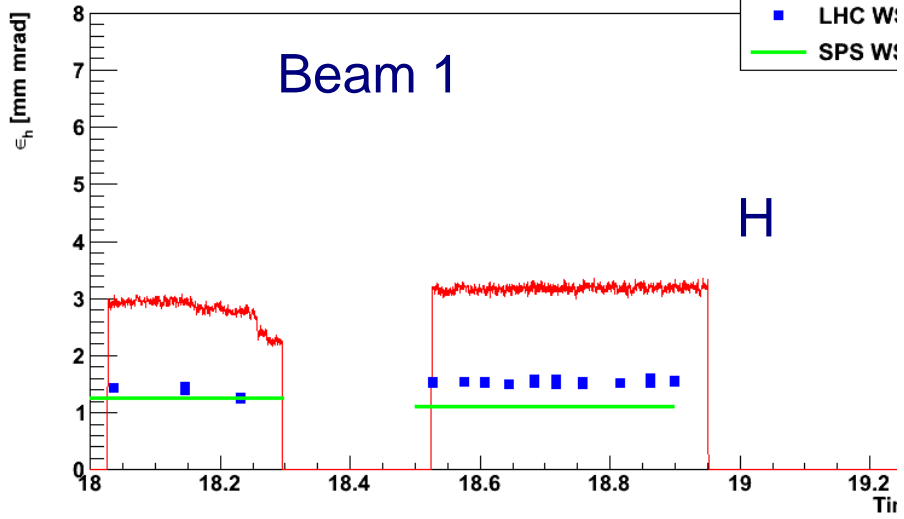
Sunday

- Overnight: Aperture studies. Standard method plus alternative emittance blowup/collimator technique
- Precycle
- Ramp to 1.2 TeV
 - Very smooth – minimal losses
 - Tune feedback
 - Orbit incorporation worked very well
 - Chromaticity OK
- 1.2 TeV studies
 - Beating
 - Separation bumps tests OK
- Injection/Beam dump studies
- 06:00 beam off, switch off

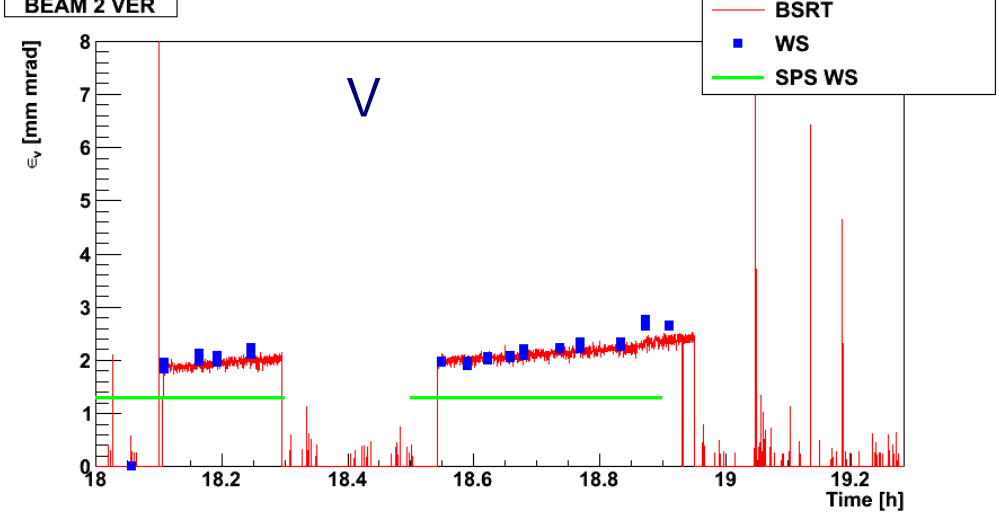
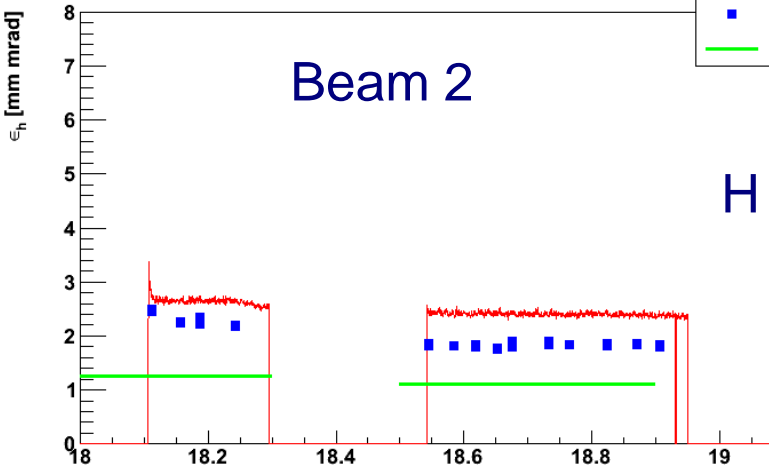


ϵ versus time

BEAM 1 HOR



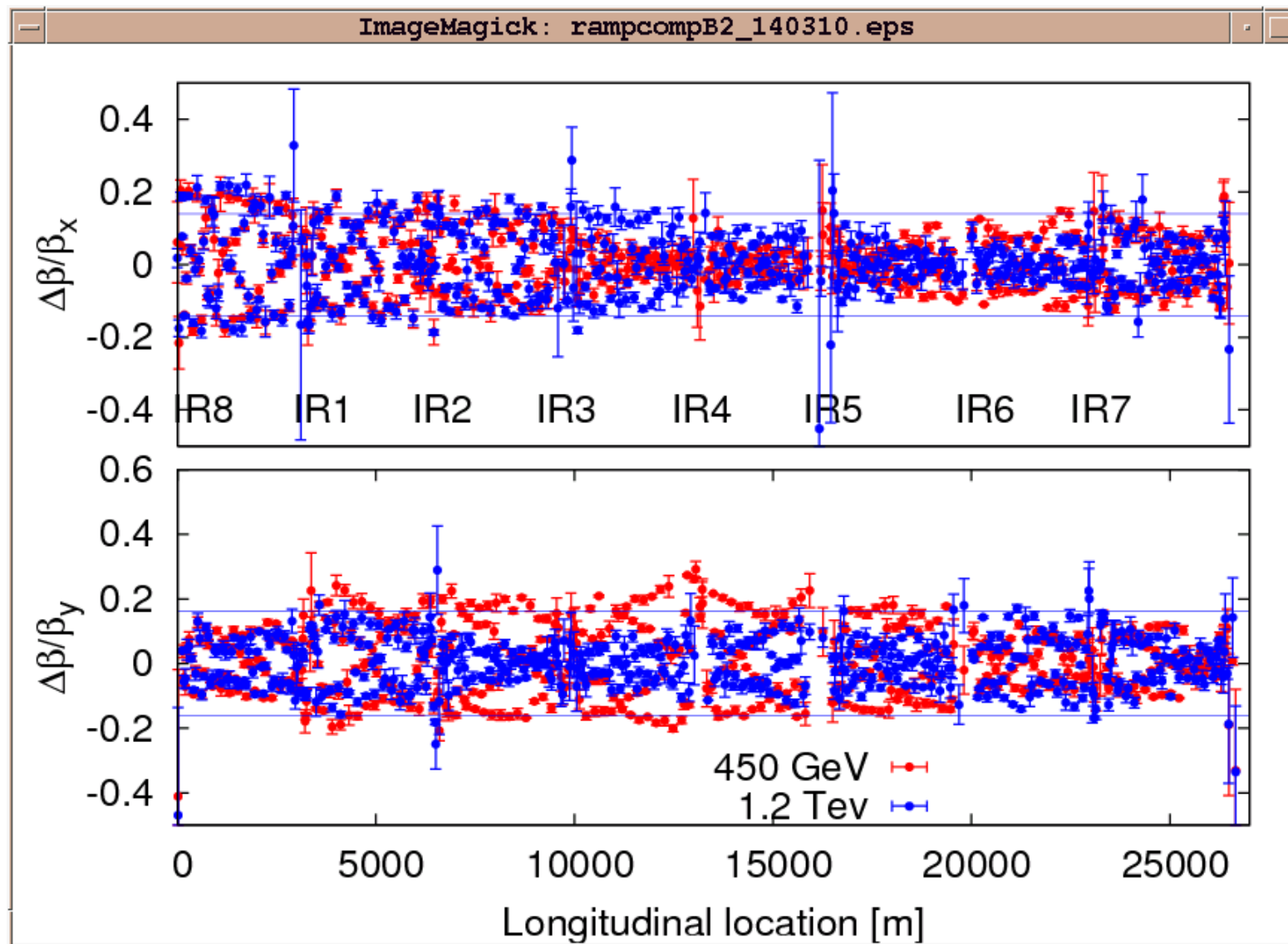
BEAM 2 HOR



F. Roncarollo



Beating – beam 2





Status – 450 GeV

- Tunes & chromaticity adjusted and controlled to nominal values routinely (good tools)
- Optics verified and corrected to a maximum beta beat of 20-30%. Almost in specification.
- Dispersion measured and verified (in vertical plane: 3 cm rms).
- Closed orbit adjusted to an rms of ~ 0.45 mm (about ± 2 mm peak to peak)
- Golden reference orbit defined for collimation and machine protection.
- Aperture looks good with bottlenecks as predicted.



Status – 450 GeV

- Spectrometer and compensators set up and corrected with beam.
- Nominal separation bumps set up and included into the corrected closed orbit.
- Beam feedback commissioning partially completed, still ongoing.
- Grazing events delivered to ATLAS and CMS. Many splash events to all experiments.



Status – 450 GeV

- Collimation system (all ring collimators) set up with ~0.2mm accuracy. Cleaning and protection hierarchy verified with beam (efficiency: > 99%, limited by BLM resolution with this intensity).
- Beam instrumentation working very well
- Injection, beam dumps, machine protection commissioning well advanced (but not finished)

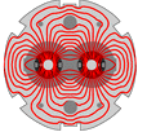
- 1-2 shifts to establish collisions in stable beams mode
 - Good for 2 to 3 e10 at the moment
 - Higher intensities definitely need more work

450 GeV machine in good shape

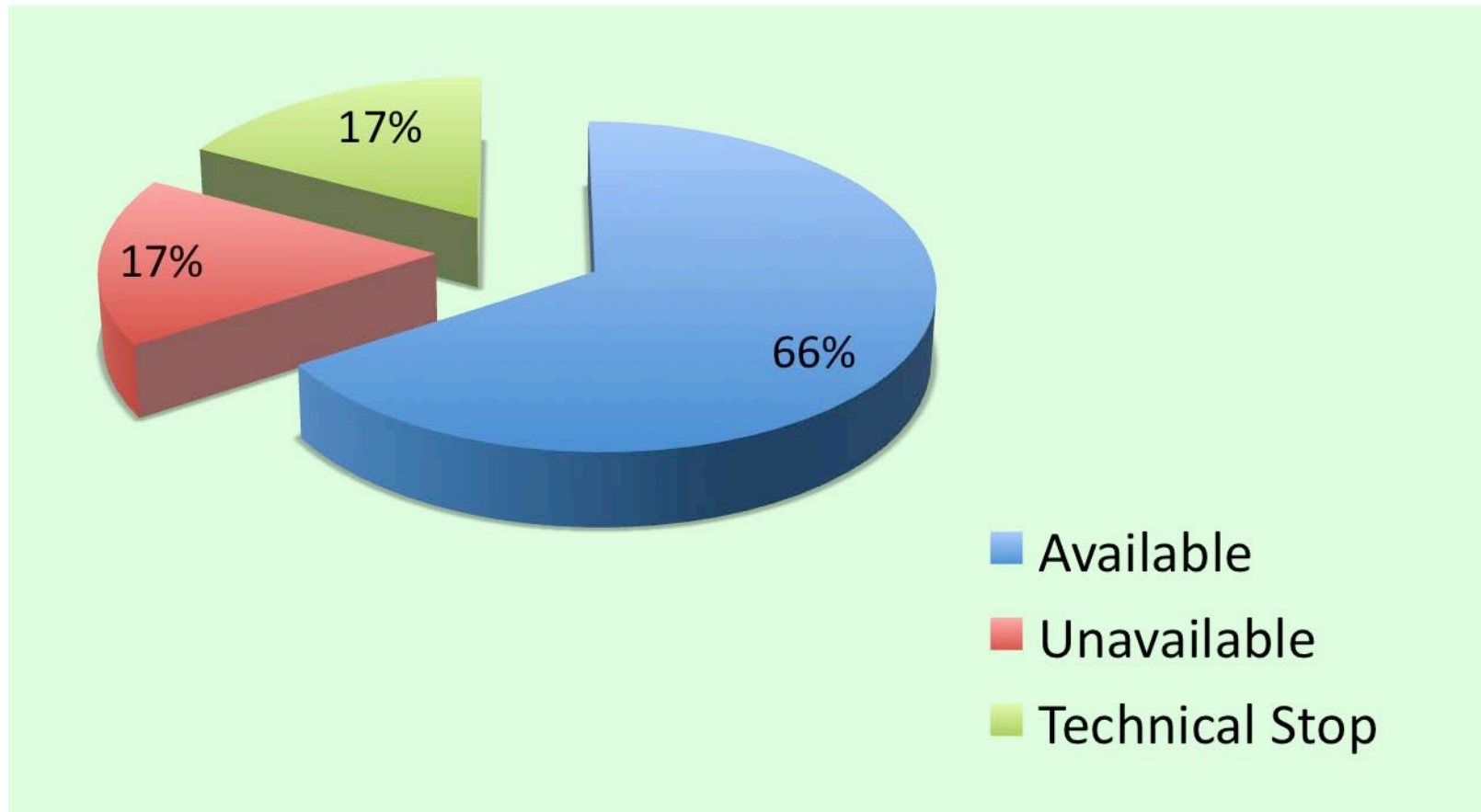


Ramp/1.2 TeV

- Ramp
 - Looks very good to 1.2 TeV (with safe beams)
 - Tune feedback operational
 - Orbit feedback to finish commissioning
- Would hope that the extrapolation to 3.5 TeV should be straightforward
- 1.2 TeV
 - Beating comparable with 450 GeV – no correction yet
 - Tune, orbit, chromaticity under control
 - Separation bumps collapse, collision tuning tested.



LHC Availability (Week 10)



All technical systems contribute to **very promising LHC availability!**

Successful running-in of the accelerator systems.