

ATF Commissioning in Fall-Winter 2008

S.Kuroda(KEK)

The 7th ATF2 project meeting, KEK, 2008

What's New

- New RF gun
- DR re-alignment in summer 2008
- New ATF2 beam line
- ...

New RF gun

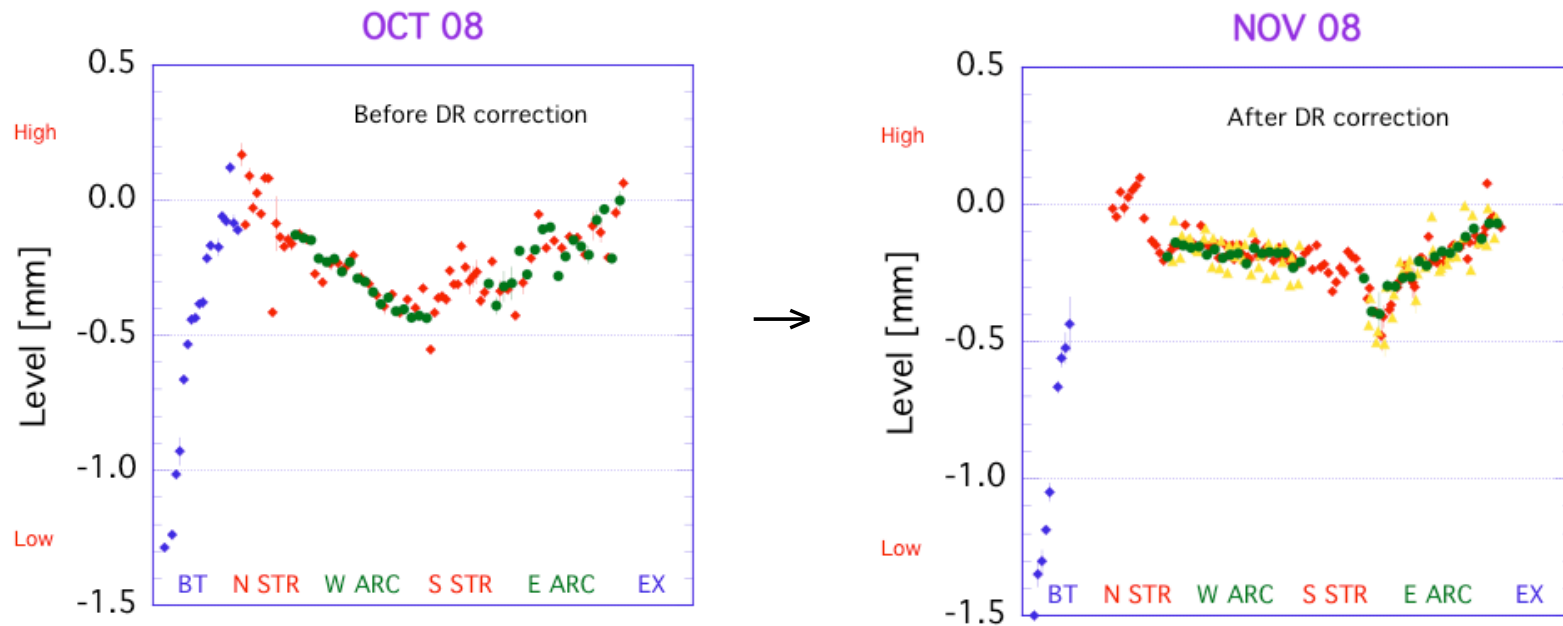
Designed for high power & less dark current
Looks working fine as ATF injector

Detail will be reported in thesis by

A.Murata(Waseda Univ.)

DR Commissioning

DR re-alignment in summer 2008



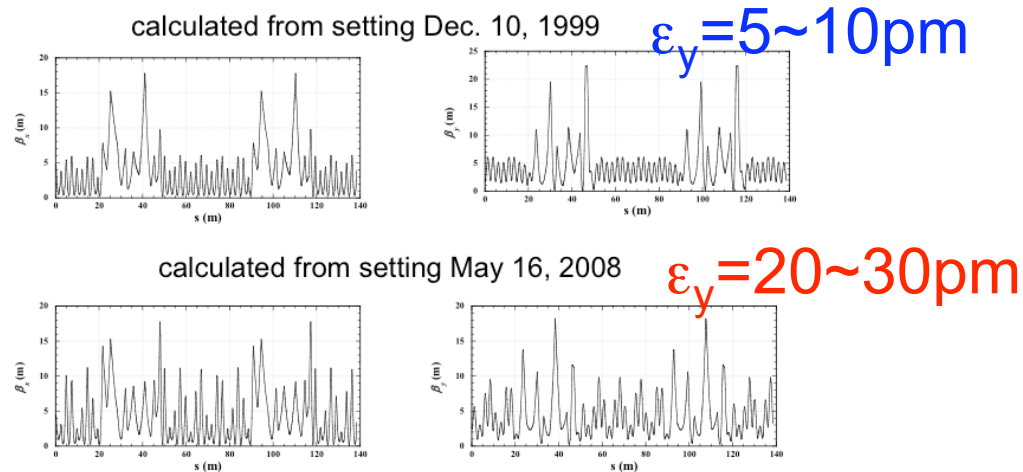
Alignment done for

V position: All around the ring

H position: Straight section

'Design Optics' of DR

Optics mismatching ?

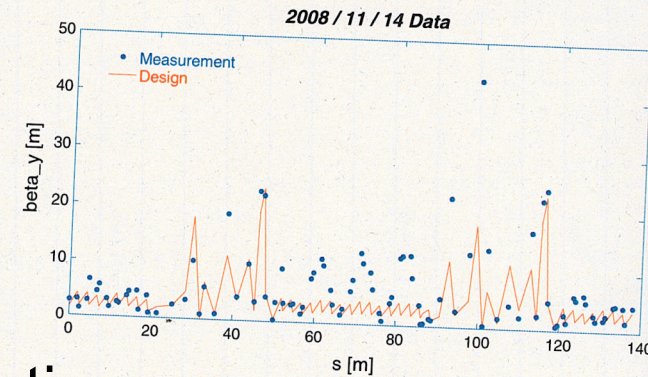
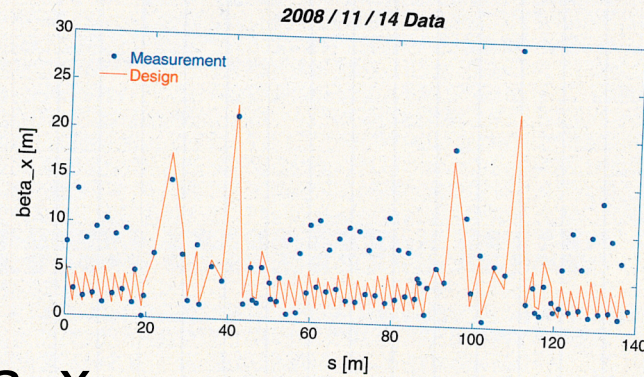


Kubo pointed out that the optics distortion is the one of the source of large emittance in DR.

Kubo, Special ATF2 Project Meeting, KNU, 2008

- 'design optics' was made in 2007
 - Re-matching
 - Tune adjustment to measured tune
- DR commissioning has started with 'design optics' in Nov. 2008.

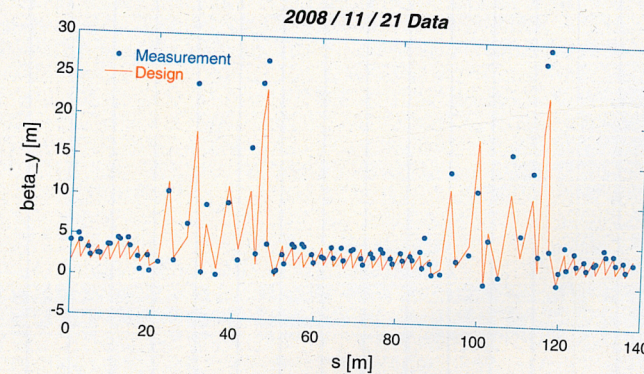
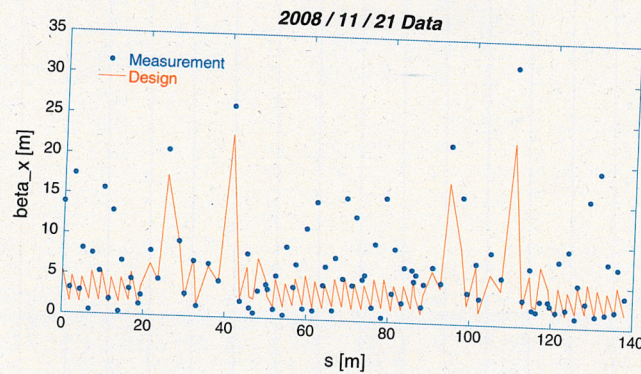
DR Optics Correction



Beta_x

↓ Correction

Beta_y



75

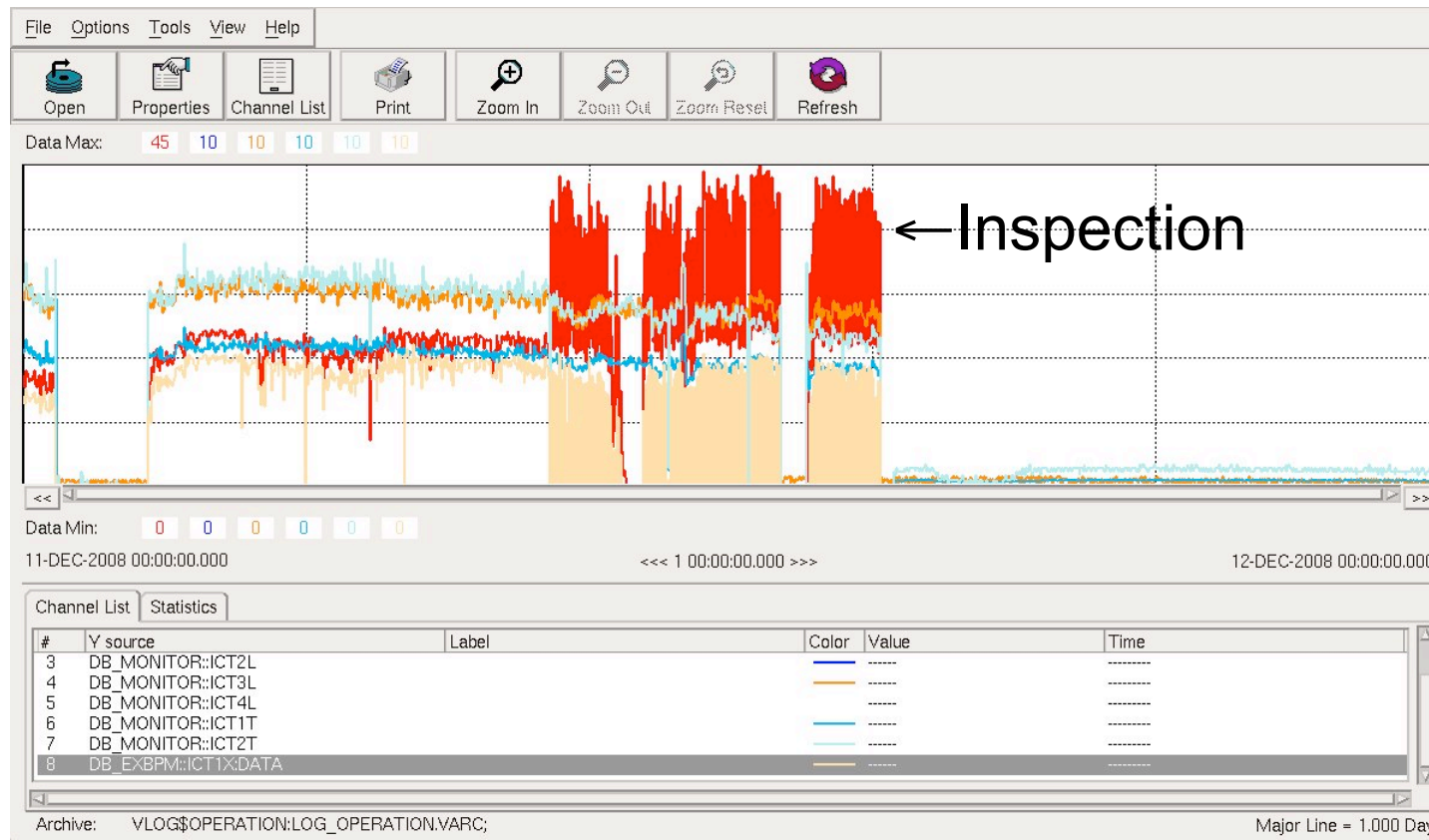
Beta_y is well corrected. For beta_x, there was some difficulty of measurement(unknown horizontal vibration was observed at that time).

Trial Operation for Inspection

- Trial operation has started in Dec. 2008.
- Goal
 - DR current > 40mA
 - Radiation < 20 % of ITLK level
- Tuning for high current
 - Multi-bunch(13 bunch), 2 train operation
 - Done without much difficulty
 - DR operation point -->'On Resonance'
- Work for low radiation
 - 'Commissioning optics' for ATF2 beam line
 - Shielding with lead blocks,..
 - Was very hard including finding out where to shield
 - Beam tuning for good transmission
 - After all, the problematic radiation is coming from inefficient DR injection

Inspection

- Inspection was done 11th Dec. 2008.
- Radiation, Inter-lock system,...



Done without big problem!

Optics Change for BSM Commissioning

- DR optics --> 'Corrected Design'
- ATF2 --> 'high beta optics'
 - Design $\sigma_x \sim 10\mu\text{m}$
- Done on 12th Dec. 2008
 - FD alignment 11-12 Dec. 2008
 - Tuning for DR storage & ATF2 orbit
 - No emittance tuning in DR nor beam size tuning in the ATF2 line