

Power Supply Progress and Magnetic Field Stability Summary

By: Masayuki Kumada (NIRS)
and Briant Lam* (SLAC)

*bri@slac.stanford.edu

19-21 Dec 2007

5th ATF2 Project Meeting

1

PS Summary

- Phase 2 – Procurement and testing
 - Progress
 - Everything is complete, except...
 - HA PS
 - First batch in transit
 - Second batch by Jan 2008
 - Test Results
 - <10 ppm stability for a 200A power supply
 - <100 ppm stability for a 50A power supply running at 2A
 - Drift in the order of 1 ppm/°C
 - Control System
 - EPICS control system by Glen White

PS Summary

- Phase 3 - Commissioning
 - Schedule
 - Shifted schedule to start in April 2008
 - Ship the PS systems at the end of March 2008
 - Property Transfer
 - SLAC is working on the “donation” paperwork
 - Ensure the proper documents accompany shipment
 - Responsibilities
 - KEK to provide:
 - Ac service
 - Dc cables
 - Interlock cables
 - Monitor, keyboard and mouse for IOC
 - Wire crimper and lugs for dc magnet cables
 - SLAC to provide:
 - Everything else
 - Note: This list may need updating

Magnetic Field Summary

- Magnetic field instability
 - Magnetic field is not stable under stable current conditions
 - Causes for instability
 - Temperature
 - Magnetic spin
 - Mechanical properties
 - Hysteresis
 - Fields have been known to increase with decreasing temperature
 - But this study showed that field increase with temperature
 - Magnetic fields increased 10's ppm/°C

Magnetic Field Stability

- Further Studies
 - Measure magnetic field drift under different conditions
 - More stable current source
 - Stable cooling water supply temperature
 - Stable magnet yoke/coil temperature
 - Perhaps stabilizing temperatures may help reduce magnetic field drift