

Accelerator Systems Milestones

June 30, 2004

	FY04			FY05						FY06															
	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Tune Feedback				1				2				3				4									
Luminometer				1		2																			
Abort Gap Monitor/LDM							1																		
Beam Commissioning				1				2,3																	
Electron Cloud	1			2						3		4				5	6,7								
IR and Beam-Beam			1					2		3					4										
Phase 1 Collimation Studies				1				2				3		4											
Phase 2 Collimator R&D	1							2			3					4									
Hardware Commissioning				1		2					3	4													

KEY:

- Tune Feedback
- 1) Sep 04. Evaluate data from PLL prototype studies in SPS
 - 2) Jan 05. Cost and Technical review in early CY05
 - 3) May 05. Conclude coupling study, write coupling correction report
 - 4) Sep 05. Design, fabricate, test, & operate prototype baseband PLL electronics & software in RHIC
- 2006) Construction of digitizer boards for LHC PLL
- Luminometer
- 1) Sep 04. 40 MHz performance demonstrated, with required accuracy & sensitivity
 - 2) Nov 04. Technical and Cost review: go/no go decision for continued prototype construction
- 2005) Design & Fab of final prototype
- 2005) Deliver engineering design of integration into TAN; Conceptual design for IP2 & 8
- 2005) Evaluate options for performing a radiation hardness test
- 2005) Begin interface to CERN DAQ
- 2007) Commission luminometering in the LHC control room
- Abort Gap Monitor/LDM
- 1) Dec 04. Deliver AGM engineering feasibility study white paper
- Beam Commissioning
- 1) Sep 04. TI-8 tests begin
 - 2) Jan 05. LHCOP group commissioning plan presented at Chamonix '05
 - 3) Jan 05. Start defining LARP jobs and names, as participants in CERN planning exercise
- 2006) Participate in LHC Injection Test, 2 weeks in 2006 with beam
- 2007) Several long-term postings to CERN for machine commissioning
- Electron Cloud
- 1) Jun 04. Participate in SPS EC experiments and studies
 - 2) Sep 04. Go/no go agreement (CERN/LARP/RHIC) to install cold EC detector in RHIC
 - 3) Apr 05. Report on simulated reproduction of measured spectrum & spatial distribution of SPS ECs

- 4) Jun 05. Report first cut at defining optimal LHC conditioning scenario
 - 5) Sep 05. Report on applicability of map simulation technique to LHC
 - 6) Oct 05. First beam with cold EC detector in RHIC
 - 7) Oct 05. Report on simulated EC at IR4 diagnostic bench
- IR and Beam-Beam
- 1) Aug 04. Participate in beam studies of wire-based BBC at SPS
 - 2) Feb 05. Report on BEAMBEAM3D strong-strong simulations (sweeping beam, emittance growth rates)
 - 3) Apr 05. Report on dipole & quad first layouts (field quality, beta star limits, energy deposition)
 - 4) Aug 05. Report on impact of beam-beam on IR design (quad/dipole first, performance limits, BBC)
- Phase 1 Collimation Studies
- 1) Sep 04. Define code bench marking tests
 - 2) Feb 05. Report on bench-marking of collimation codes with RHIC beam data loss
 - 3) Apr 05. Test LHC collimator set-up procedures with RHIC collimation system
 - 4) Sep 05. Report on accuracy of "cleaning efficiency" simulations, and lessons for LHC
- Phase 2 Collimator R&D
- 1) Jun 04. Phase II collimator meeting, CERN
 - 2) Jan 05. Present status report at Chamonix '05
 - 3) Apr 05. Phase II collimator review, go/no go decision
 - 4) Sep 05. Hire ME, set up lab & test RC0 (existing prototype)
 - 2006) Design and build more LHC specific RC1 prototype
- Hardware Commissioning
- 1) Sep 04. Deliver a hardware commissioning report for FY05 and beyond
 - 2) Nov 04. Warm fit-up of inner triplet (D1/DFBX/Q3/Q2/Q1)
 - 3) Apr 05. Participate in installation of 3 IRs, and TAS/TAN in IR1
 - 4) May 05. Begin hardware commissioning efforts (room temp, vac, alignment, initial cool-down)
 - 2006) Installation support & commissioning of US provided systems; injection/sector test