

12 GeV Beam Physics Meeting

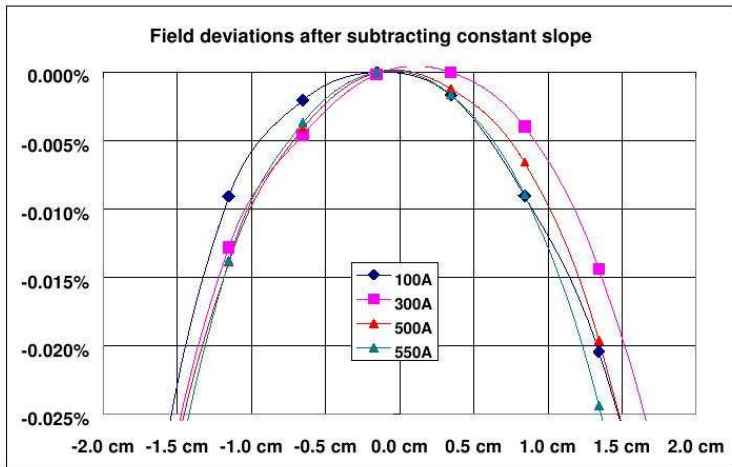
apf

April 10 2006

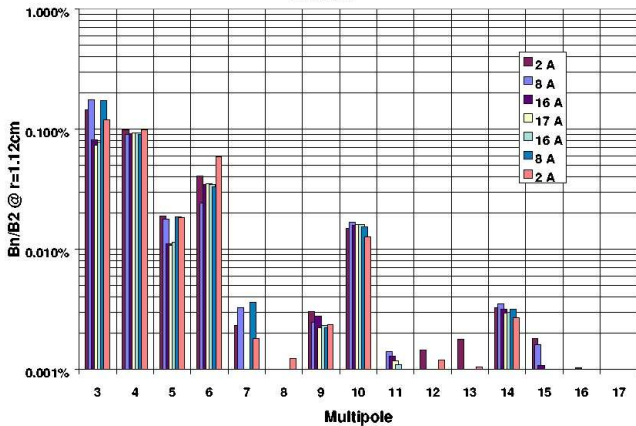
Agenda

- 1 Magnetic Field Specification—12 GeV Management Response
- 2 Some Tracking Results
 - Arc9
 - Synchrotron Radiation induced Emittance growth
- 3 Next Week

Response from 12GeV Management



QA#238



Creation of a single Document

- Need to merge: Dipole field spec., Alex's analytic spec., Eduard DIMAD/multipole specification into a single tech-note
- Need to do this in three weeks or less
- Who?

Outline

- 1 Magnetic Field Specification—12 GeV Management Response
- 2 **Some Tracking Results**
 - Arc9
 - Synchrotron Radiation induced Emittance growth
- 3 Next Week

Misalignment and misplaying

- BPM/dipole/quadrupole magnets mis-aligned by $200\mu\text{m}$
- BPM resolution $20\mu\text{m}$
- Dipole and quadrupole misplaying by 1:10000
- No multipoles at this time.
- Correctors are used to resteer to reference orbit.
- Synchrotron Radiation turned on [emittance growth only]

Steering

/casa-apf1/data/freyberg/12GeV/dimad_decks/trunk/se

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RMS Beam Size

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Emittance growth Arc6 to Hall-D

	1999		DIMAD	
area	ϵ_X (nm-rad)	ϵ_Y	ϵ_X	ϵ_Y
chicane	4.17	4.17		
Arc1	0.437	0.434		
Arc2	0.313	0.263		
Arc3	0.289	0.283		
Arc4	0.315	0.415		
Arc5	0.581	0.481		
Arc6	1.41	0.644	1.69	0.735
Arc7	2.21	0.703	2.05	0.788
Arc8	3.58	1.03	2.70	0.907
Arc9	6.67	1.12	6.87	0.969
ArcA	9.43	1.91	8.45	1.39
Hall-D			8.98	2.61

Next Week

- More on tracking: Multipoles
- Corrector/BPM quantity and location study [Chao]