

CESR Machine Studies Planning

- Overview
- Principal Projects
- Other Milestones and Dates
- Machine Studies Schedule
- Proposed Plan

Overview

- **Projects**
 - Will present the list
 - Soliciting comments from primary investigators about details and time estimates
- **Optimization Issues**
 - CLEO-c production running
 - ILC Meetings (and status reports)
 - Collaborator Involvement
- **Outline of Proposed Schedule and Time Requirements**
- **Discussions**

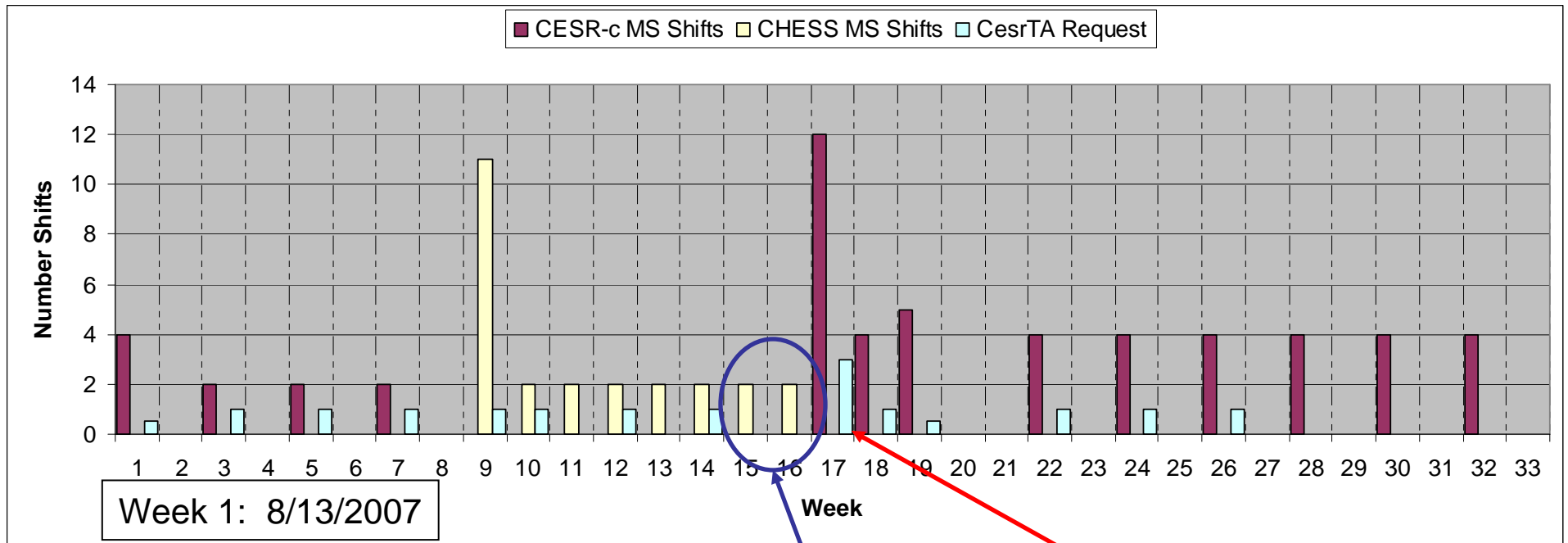
Projects

- Electron Cloud Studies
 - Detailed studies with RFAs
 - Bunch spacing/charge studies (multipacting resonant behavior)
 - Develop additional measurement techniques (eg, KEK techniques)
 - Witness bunch studies at 5.3 GeV
 - Collaborator Visit
- Ion Studies
 - Synthesized mode spectra measurements
 - Controlled pressure bumps with different species
 - Other measurement techniques
- Low Emittance Lattice
 - Initial loading and correction
 - Beam-based alignment
 - Instrumentation Tests
 - Vertical beamsize interferometer
 - X-ray beamsize monitor
- Machine Correction
 - Algorithms for low emittance correction
 - Fast dispersion measurements
- 4 ns Feedback Studies
 - Ongoing checkout
 - Characterize longitudinal instability
 - Threshold
 - Mode
 - Initial beam dynamics experiments
 - Support hardware upgrades
- Instrumentation Upgrades
 - BPMs
 - 4 ns operation
 - Front end BW
 - 4 ns digitization
 - Lower noise BPM front ends
 - Streak Camera
 - 125 MHz Synchroscan Unit for 4 ns operation
 - New timing module
 - Vertical beamsize interferometer
 - For low emittance measurements
 - XBSM Studies
 - CHESS run
 - Potential for use during final CLEO-c run
- Other???

Other Milestones and Dates

- Schedule another Collaborator Visit for EC Studies
 - During CHSS to CESR transition during first full week of December?
 - Aim for 3 shifts of tests?
 - Would be timely in advance of the Damping Rings R&D Meeting at KEK
 - One of the primary discussions scheduled will be EC R&D
- ILC GDE Meetings (status reports)
 - Oct 22-26 GDE meeting at FNAL
 - Nov. 5-7 Damping Rings EDR Meeting at Daresbury
 - Dec. 18-20 Damping Rings R&D Meeting and ATF Technical Board Meeting at KEK

Machine Studies Schedule

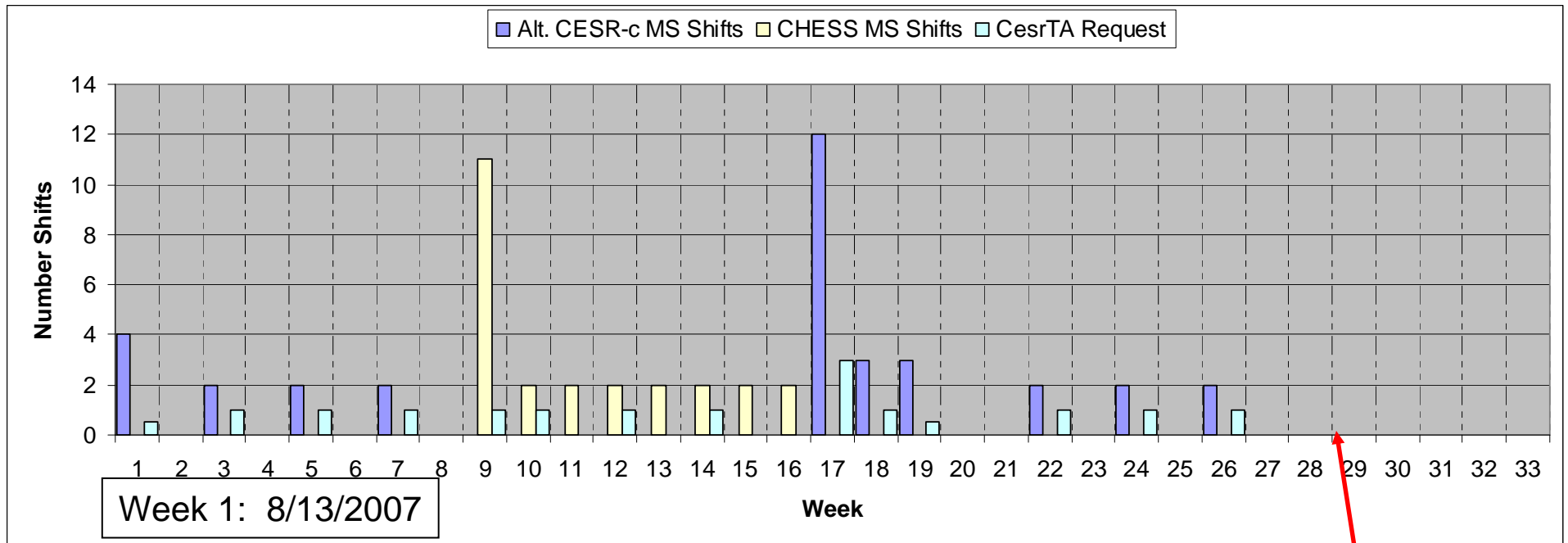


- Machine Studies Shifts
 - CLEO-c
 - Remaining in present run: ~12
 - Scheduled in final run: ~45
 - CHESS
 - Scheduled: ~25
 - CesrTA Request:
 - 3.5 during present CLEO-c run
 - 4 during CHESS run
 - 7.5 during final CLEO-c run

XBSM Testing Starts @CHESS

Proposed ECloud Collaborator Visit

Possible Alternate Machine Studies Schedule



- Machine Studies Shifts

- CLEO-c

- Remaining in present run: ~12 (unchanged)
- Scheduled in final run: ~24 (vs 45 previously)
 - Allow intensive tuning and "emergency" machine studies during remainder of final run
 - Is there an energy change mid-way through final run???

- CHESS

- Scheduled: ~25

- CesrTA Request:

- 3.5 during present CLEO-c run
- 4 during CHESS run
- 7.5 during final CLEO-c run

Schedule MS if needed for energy change

CesrTA Machine Studies Plan (*Draft*)

Week	Shifts	CTA	Tasks	Comments
8/13	4	0.5	EC RFA and beam measurements	
8/27	2	1	EC Measurements & Fast Dispersion Measurement Tests	
9/10	2	1	Low Emittance Lattice (loading/corr)	
9/24	2	1	4ns Fdbk: Checkout, Streak Camera, Long. Instability, EC Measurements	New timing unit hopefully available
10/8	11	1	Ion Studies with controlled bump (H ₂ &N ₂)	Valve location available
10/15	2	1	EC RFA and beam measurements (high energy characterization)	GDE Mtg (10/22-26)
10/29	2	1	Instr & Methods Checkout/Development	DR Review (11/5-7)
11/12	2	1	Instr & Methods Checkout/Development	
11/19	2	?	XBSM Tests Starting at CHESS	
12/3	12	3	EC RFA and beam measurements	Proposed Collaborator Visit
12/10	4 (3)	1	Contingency	
12/17	5 (3)	0.5	Contingency	DR Workshop (12/18-20)
1/7	4 (2)	1	Low Emittance Lattice	
1/21	4 (2)	1	Low Emittance Lattice	
2/4	4 (2)	1	Instr & Methods at Low Emittance	