

Notes from AS Webex meeting

15th June, 2011

Participants

Nick Walker (chair), Akira Yamamoto, Andrei Seriy, Sabina, Ewan Paterson, Marc Ross, John Shepard, Benno List, Wei Gai, Yokoya, Mark Palmer, Tetsuo Shidara, John Carwardine (scribe), Suzanna Giudicci

Announcements

- John Sheppard has agreed to take on the role of Electron Source TAG (taking over from Axel Brachman)
- LCWS in Grenada (Joint ILC / CLIC workshop)
 - o Those invited to be conveners for the GDE parallel sessions should have already received email from Marc Ross. Please confirm or recommend alternates.
 - o Meeting will be important for GDE since it will effectively be the kickoff for writing the TDR

PM report (Nick)

PAC Review 18-19 may

- All the talks are publicly posted. (link?)
- <http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=5084>
- Chaired by Lynn Evans, it's intended to be the GDE Management 'oversight' review, but it has become rather technical of late.
- Topics highlighted during this review:
 - o Beam test facilities.
 - o SCRF R&D
Cost estimates for SCRF mass-production models
 - o TDR baseline
 - o Collaboration with CLIC
- Key findings (written report expected soon):
 - o The importance of having a coherent concept for the activities after 2012, such as maintaining the core team for the post GDE era – this comment was intended for the ILCSC
 - o GDE primary goal should be to keep the costs under control
 - o The strongly endorsed the 'build-to-print' concept for SCRF where the Labs assume and manage the risk in order to constrain costs

- o There was strong support for KEK pilot plant concept
- o Encouraged by recent R&D results:
 - o Gradient results
 - o Recent results of the 9mA studies at FLASH
 - o Impressive recovery at KEK following the earthquake.

Baseline Technical Reviews (BTRs)

Structure of the meetings was partly based on the success of the BAWs
 The meetings are an important part of the design process to establish the baseline for the TDR, being the next level of change control below the TLCC
 Agenda includes consolidation of the Technical design documentation (TDD into ILC-EDMS) and cost estimate
 Will be a spring-board into writing the technical design report

Review Schedule:

DR: 7-8 July at INFN Frascati

Combined meeting for RTML, Sources, BDS/MDI: 24-28 October at DESY

Linac (SCRF): 19-20 January 2012 at KEK

CFS/Global Systems: 1st Quarter 2012 (the last of the reviews by design)

Accelerator Systems reviews need to cover:

System Design Parameters

Baseline lattices

Component technical descriptions

CFS requirements – need to keep in mind that the Accelerator systems are the cost drivers for CFS requirements

Cost estimates, especially where there are significant changes from RDR.

(Limited resources mean that we don't expect a lot of the cost estimate for AS to be re-done, so a lot of these costs will have to be scaled from the RDR.

BTR preparations:

Very important to do the work in advance, especially on the design and documentation in advance. The BTRs must be considered the final review and sign-off of key decisions - they cannot be a launch-point for starting work! We need to keep post-BTR decisions to a minimum

Currently preparing for the Damping Ring review. Will start preparation for the Oct meeting soon

BTR AS design register

Lattice design is the basis for everything. Benno is putting together documentation of the current lattices as a means of identifying interfaces with CFS and for purposes of costing

The first iteration of the Design Register will be released next week. It will be presented by Benno List at the AD&I meeting on June 22nd.

An important part of the BTRs is to identify and prioritize the key remaining work. It is important to keep in mind that the limited available resources mean we may have to live with the current status, but this is likely sufficient for the cost estimate.

BTR documentation (AS and more generally)

Primary deliverables for each AS that should be prepared prior to the TBRs:

A clear WBS structure in ILC EDMS is clearly needed. This has already been done for the damping ring.

Top-level descriptions of system and layout

Parameter tables

Beamline overview

Lattice files

Components lists, specifications, etc

CFS requirements

Marc said that next week's meeting will be focused on preparations for the DR BTR.

AD&I Monthly meetings

Next week (21st June)

Preparation for DR TBR, specifically CFS

Release of first iteration of design register

July 20th

Post-review of the DR BTR

Proposed agenda for the DESY October review

Design register and documentation update/status

August 17

1 TeV upgrade

Reports on the 1TeV upgrade homework

It is planned to come back to the 1TeV Upgrade about every third AD&I meeting

Sept

The BTR at DESY will take the place of the Sept/Oct meeting.

Should not wait until after Sept/Oct before starting to prepare for Jan meeting at KEK

TeV Upgrade 'Homework' for Aug 17th AD&I)

'Homework' assignments had been emailed out by Nick on 10th June.
Development of the TeV machine parameter set based on a maximum beamstrahlung of 10% and low beam power option (Kaoru, Toshiaki, Andrei)
High power RF – range of possible linac beam parameters at 1TeV (Chris A , Chris N, Shigeki)
Main linac lattice solutions for 1TeV upgrade based on existing layouts and limits (Kyoshi, Nikolay)
Possible parameter set for 2- and 3- stage bunch compressors (Nikolay)
Undulator Positron Source parameters (Wei)
BDS relevant issue: collimation system, main beam dump (Andrei)

Important working assumption is keeping $P_{AC} \leq 300$ MW. Even though the Damping Ring and sources do not feature heavily in the list of homework tasks, DR and Source TAGLs should comment on the proposed parameters sets.

It will be important to remain flexible with regard to the ILC parameter sets, especially with respect to energy whilst we await LHC results.

TDR Outline (update)

Original proposal: The PMs had previously considered a 4-volume outline, comprising an executive summary and three volumes:
Part 1; R&D Summary (these will be essentially an extension of what's in chapters 1-3 of the Interim Report but hopefully more conclusory with respect to the TDP R&D goals.
Part 2: description of the updated Reference Design organized by accelerator system, and including costs and the 1TeV upgrade.
Part 3: risk analysis and post 2012 R&D activities.

NOW... PMs have proposed to cut down to three volumes, with the risk analysis being included in the Reference Design volume, and the post 2012 R&D work would be integrated into the R&D summary. The post 2012 work includes development of design, etc, and this might be integrated into the Reference Design volume.

Calendar of meetings etc

(see Nick's slides)

TAG Leaders Status Reports

Electron Source (John Shepard)

John asked about top-level parameters. Nick said that the top-level parameters sets are in EDMS. Beam parameters (in particular bunch spacing) may need updating after the DR BTR meeting (small adjustment). Baseline bunch pattern is 1300 bunches, but sources must be capable of providing 2600 bunches. Open issue to be addressed: whether the sources have to support 2600 bunches at 10Hz or only at 5Hz.

John noted that Sources R&D effort at SLAC has been slow recently. There are no longer plans to integrate the SLAC laser with the gun at JLAB. The plan is to declare success on the laser and the gun independently.

Positron Source (Wei Gai)

- Simulations for the 1TeV upgrade show that meeting the polarization requirement is more challenging than expected.
- Funding has been released to Livermore for the flux concentrator.
- An announcement has been sent out for the Positron Source collaboration meeting on August 27. Wei asked that at least one of the PMs attend the meeting. It is planned to have a Posi-Pol meeting immediately after the ILC collaboration meeting
- Nick: how is the recovery going from the earthquake for the Sources R&D program at KEK? Omori reported that ATF/ATF2 based R&D should in general be back at the end of the year. Advanced conventional source R&D finished last year, so no effect from earthquake.
- Nick: need to develop a parameter set for the auxiliary source. Nick will contact Wei Gai to set up a dedicated meeting on the aux source key parameters.

Damping Rings (Mark Palmer) – see slides

Mark visited Fermilab to meet with CFS on June 2nd.

Currently iterating on some design details on straight section layout

A preliminary agenda is ready for next month's Damping Ring BTS. Main topics:

- Lattices
- EC R&D
- Interfaces,
- CFS requirements
- System documentation for technical systems
- Cost scaling from RDR
- Critical tasks, schedules, remaining tasks
- An EDMS session (Benno List to coordinate) is planned after the end of the main meeting.

Nick commented that the proposed agenda looks very packed. People will need to be very well prepared ahead of time and discussion time would need to be minimal in order to keep to the proposed schedule. Are there specific areas where a lot of discussion required? Mark: there is likely to be a lot of discussion. Mark agreed to re-work the schedule in order to give more time for the key discussions.

Nick: are there specific places / topics where you need input from the PMs?

Mark: it is likely there will not be formal documentation for the chosen lattice because the decision will have been made only just before the meeting.

Nick: the meeting has to be a close-out for the critical issues and not a forum for discussion about key issues. Additional meeting time should be scheduled before the BTS if it is needed so that unresolved issues can be dealt with ahead of the BTR.

So far 16 people are registered for the BTR.

BDS/MDI (Andrei)

Andrei: have working assumptions been made with regard to defining 1 TeV upgrade parameter sets? Nick: the 300MW power number is to put a ceiling on the total utility power. The limit is somewhat arbitrary but seems a reasonable goal.

Andrei: what should be assumed accelerating gradient and the associated cryo power? Nick said this is a good point and as not been explicitly addressed. Some additional guidance for the TeV parameter study is needed. PMs will discuss this issue with the relevant experts.

Andrei proposed using one of the days set aside for parallel sessions at LCWS to hold this year's ATF2 Collaboration Meeting. (It would normally be held at KEK.) This would require coordinating with low-emittance and DR working groups. There was general agreement this was a good idea. Marc said that in principle it should be possible given the amount of parallel working session time available.