

# Baseline Assessment Workshop Scheme and Charge (Draft)

Prepared for the ADI meeting, Wednesday 28 April, 2010 Marc Ross

The 'Baseline Assessment Workshop' will be an open plenary meeting with two-days per theme and two themes per workshop. In the next year, we expect to hold two four-day workshops for the top-level change control (TLCC) themes:

1. Average accelerating gradient
2. Single tunnel for Main Linac (including HLRF solutions)
3. Reduced RF power parameter set( Including damping rings)
4. Positron source location

We expect a greater number of attendees than we had at the 'ILC Accelerator Design & Integration - face-to-face meetings' held in 2009 at DESY. We expect the attendee list will include:

1. PM (chair)
2. ADI team / TAG leaders
3. Agenda organized by relevant TAG leaders
4. Physics & Detector Representatives
5. External experts

At the Workshop, we would like to achieve the primary TLCC goals in an open discussion environment and prepare a recommendation for the Director's Change Evaluation Panel.

The purpose of the Baseline Assessment Workshop is to analyze the key points of the topic at hand and define both 1) a recommendation on it for the project baseline and 2) further work to be done in support of the topic. The key points are to be defined in a workshop charge. These should be published in advance and will be the basis for the agenda.

The process to be followed at the workshop will include 1) an introductory presentation of the topic, 2) a preliminary evaluation of the key points, 3) a sequence of suggestions from workshop participants for each of the key points and 4) presentation and discussion of a concluding summary which consists of statements that comprise the recommendation. Item 3), above, is an important aspect of the workshop, namely an opportunity for stake holders to contribute to the assessment.

**The successful convergence on a recommendation will depend on successful preparation and homework in the months leading up to the meeting. A definite charge with instructions (this document is the initial step) will be distributed with enough lead time to allow proper preparation. For the first workshop, the monthly 'Wednesday' Technical Area webex meetings will be used to manage the preparation. Stake holder participation begins in those.**

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Suggestions for the Main Linac Baseline Assessment Workshop:

Topic: Re-evaluation of the baseline gradient.

Consideration of the main linac cavity specification (Theme 1)

Key points:

1. The average production low power test cavity gradient to be specified
2. The specified production low power test cavity gradient spread
3. The gradient margins to be specified for each of the production and assembly steps that follow low power test –
4. The installation and operations gradient margins and tolerances to be specified for the baseline - resulting in a specific overall average gradient
5. The  $Q_0$  and emitted radiation limits that correspond to each of the above steps
6. The production and test process steps for the above, including key measurements and parameters to be recorded
7. The operational tuning and control strategy, including tolerance specifications
8. The cost impacts on CFS, number of Cryomodules and RF units, and Cryogenics, given updated gradient, power and cryogenic heat load requirements

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Topic: Assessment of single tunnel HLRF systems: KCS, DRFS.

Consideration of the system specified performance - voltage, stability, efficiency and reliability (Theme 2)

Key points:

1. KCS: the tolerances on RF amplitude and phase within a cluster - coherent and incoherent
2. KCS: the required operational margin of RF power
3. KCS: the extension of the TDP R&D
4. KCS: The operational tuning and control strategy, including tuning and controls tolerance specifications
5. DRFS: the required assembly and installation sorting strategy and tolerance
6. DRFS: the extension of the TDP R&D including radiation shielding tests, klystron lifetime studies and redundant system tests
7. For reference: Tesla/XFEL-like - the optimal system scheme and site-dependent constraints

