

Notes from BI-TB

1) Introduction (Hermann, L. Jensen)

Hermann reminded the meeting of the main goals of the BI-TB that are:

- A) Raising issues to a wider audience looking for solutions
- B) Provide status and outlook reports
- C) Share information (new projects)

The BI-TB is expected to meet once every two weeks in the beginning to get rid of back-log and later in the year (outside holiday periods) once a month. Lars informed that the agenda would be sent out with proposed speakers at least two weeks before the foreseen date and that the JIRA-Issues web-site will be used to track actions:

<https://issues.cern.ch/browse/BITB>

A review of actions will then be made at the beginning of each relevant meeting.

2) LHC BSRT status and plans (F. Roncarolo)

The notes from the last BI-TB meeting can be found here:

<https://espace.cern.ch/be-dep-bi-tb/Lists/Calendar/DispForm.aspx?ID=840>

Federico commented on the two options regarding the design of the BSRTM where option 'B' as an all-metal construction is now favoured. The beam 1 (B1) line will differ from beam 2 (B2) as an interferometer. The new calibration line (BSRTR) for beam 1 (based on a modified BTVSI tank) will replace the existing periscope (BSRTA) where an ECR is presently circulating for approval:

EDMS = 1335304. The expected delivery is March allowing for a (possibly delayed) installation during March while non-critical components outside vacuum will be installed later in the year.

The mirror-supports (BSRTM) for option 'A' are being produced and the pieces are expected before end of January while the pieces for option 'B' are expected during February. Here also an ECR is being prepared for submission.

For the tank supports slide 7 it was agreed to go along with Federico's proposal to base it on the 3-pillars for both beams which allows freeing space for a halo-monitor. The question of vibration is considered not relevant.

On the question of mirrors, Federico mentioned slide 9 that mirrors with UV coating could potentially be a bottle-neck for the scheduling.

The light shielding has been ordered and is being tested in the lab. Aurelie mentioned that accessing the optical equipment is very difficult once installed so investigations into alternatives are on-going.

For the image acquisition, a digital camera from Hamamatsu (~70kCHF) will be used possibly making use of a VFC-based frame-grabber. The 'normal' gated BSRT will remain on analogue

cameras (base-line for 2015 start-up). 2 additional devices from Proxicam have been ordered.

Proposed action-points (from Federico's slide #13):

- 1) Follow-up on mirror delivery to avoid installation delays
- 2) ECR for option 'B' to be submitted to EDMS
- 3) Continued RF testing and simulations to be scheduled
- 4) Freeze optical design with number of motors
- 5) Provide draft software specification whenever possible (final Sep 2014)
- 6) Light shielding

3) Wire-scanner status and plans (B. Dehning)

Injector calibration:

Bernd presenting pictures of the calibration benches in the radioactive labs in building 867 (a total of 3 available with the last foreseen for the new design). He explained the principle where a bench for a given type of scanner is equipped with a moveable laser controlled by a stepping-motor which is moved by an application provided by BI/SW allows scanning from -50mm to +50 mm across the aperture of the tank. A double peak laser (produced with a splitter) allows offline verification of the results obtained. Bernd mentioned that mechanical issues are the main source of errors in the benches and typically obtained results show absolute errors of around 100um between consecutive scans (slide 7). In order to reduce this error the new wire-scanners are required.

SPS impedance issue:

Bernd presented the latest results from RF measurements and simulations which showed that a strong resonance at 300MHz could likely be damped by installing a wire and ferrites however additional simulations in collaboration with BE/ABP are required. A decision on the mechanical solution is required before the SPS tunnel is closed.

LHC bellows:

Bernd showed formulae believed to correctly describe how the bellows of LHC wire-scanners react when a linear scanner is moved across the aperture. A new design of bellows and springs has been ordered and the pieces are now present at CERN. The bellows must be welded and is expected to be ready by week 12. It is proposed to test a prototype by doing 1000 scans in the lab using a Labview-based application provided by Emiliano.

On a question from S. Bart-Pedersen concerning the status for bunch-by-bunch wire-scanner measurements in the PS, Bernd replied that the installation of timing cables was being planned with H. Damerau from BE/RF.