

## Working group on future irradiation facilities at CERN

### Notes of the meeting of 10/3/2010

Present: M. Brugger, I. Efthymiopoulos, E. Gschwendner (invited), D. Kramer, L. Linssen, M. Moll, C. Rembser, H. Vincke, T. Wijnands

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#### Agenda:

1. Feedback on the "Experimental areas and facilities" session of the LHC Injectors and Experimental Facilities Committee (IEFC) workshop (E. Gschwendner)
2. Status and possibilities for the proton irradiation facility in the East Hall (M. Moll)
3. Status of HiRadMat (Ilias Efthymiopoulos)
4. Update on GIF++ (C. Rembser)
5. Discussion on CERF++
6. Discussion on the strategy for the working group (L. Linssen)
7. Preparation of the EIROFORUM presentation Lisbon (M. Moll)

### **1: Feedback on the "Experimental areas and facilities" session of the LHC Injectors and Experimental Facilities Committee (IEFC) workshop**

(see slides)

Edda Gschwendner reported on relevant items from the experimental areas and facilities session of February 12<sup>th</sup>. One important feedback from the meeting is the official approval path for new projects (see Edda's slide 10). This approval path shall be taken into account for any new proposals from the working group, such as the proton facility with slow extraction and the mixed-field facility. The other important feedback concerns the presentation on the East Area renovation. The East Area renovation will now be studied by EATM, compliant with the technical path depicted on the right-hand side of slide 10.

### **2: Status and possibilities for the proton irradiation facility in the East Hall**

(see slides)

The PS proton irradiation facility was again heavily used in 2009 (142 days). With respect to previous years the number of irradiation samples has gone down, while the irradiations have typically required more complex infrastructures. Current improvements of the facility follow this trend (e.g. with new irradiation tables and cold box systems) in collaboration with the users. Following the recent Chamonix workshop, it has become unlikely that the PS2 machine will be built. The working group felt therefore that it was important to make a proposal to the LHCC for improved proton facilities in the East Hall, in line with the requirements described in the conclusions of the working group (Dec 2008 memo) and slide 9 of M. Moll's presentation. It was decided to prepare a proposal document for the LHCC meeting of May 5/6. It was felt that the proposal document would not need to include a detailed implementation plan. It was felt more important to make the scientific case to the LHCC well in time in view of the East Area renovation plans. The expected approval of the AIDA project shall become part of the overall picture to be presented to LHCC and to the technical bodies such as IEFC and EATM. The situation of incompatibility with the DIRAC experiment shall be brought to the attention of the relevant bodies (SPSC, LHCC, research director, RB).

**Action:** Contact the LHCC and prepare a proposal document for improved East Area proton facilities (resp. M. Moll, L. Linssen)

### **3: Status of HiRadMat**

(see slides)

Ilias showed the good progress of the implementation of HiRadMat. The deadline for completion is in summer 2011. The facility will deliver about  $10^{16}$  protons/yr, typically shared between 10 users.

#### **4: Update on GIF++**

(See slides)

Christoph presented an update on recent events related to a possible future go-ahead for GIF++. The scientific case for GIF++ has been confirmed by the SPSC and the RB. The technical assessment of the optimal place for implementation has been delegated to IEFC and EATM. According to Ilias Efthymiopoulos, their formal recommendation on the matter can be expected soon. The financial side was discussed at a LEAF meeting on November 20<sup>th</sup> 2009 in the presence of representatives from the EN department, the PH department, DGS/RP and some LHC experiments. The cost of the facility was estimated at ~1.2 MCHF. While the EN and PH department make 100 kCHF and 500 kCHF available respectively, a contribution of approximately 600 kCHF is expected from the experiments. Following the LEAF meeting, informal contacts with the experiments on this matter were not fully encouraging. The WG was concerned about the lack of clear support from the experiments. It was decided to make another round of contacts, including also the research director. In case this yields no results, the WG is ready to “freeze” the GIF++ plans due to limited support from the principal clients.

Thijs Wijnands asked about the maximum dose rates at the proximity of the Cs<sup>137</sup> source for GIF++. Unfortunately these dose rates are much lower than those required for typical accelerator equipment (survival and SEU) tests. At GIF++ the source mainly serves for long-term operation tests and tests of performance of detectors under severe background conditions.

*Note (added after meeting): A 10 TBq <sup>137</sup>Cs source would give about 2 Gy/h at 50 cm from the source (see GIF++ proposal).*

Action: Prepare a memorandum on GIF++, to be signed by the experiments+PH+EN (resp. L. Linssen); take up appointment with the research director to discuss GIF++ and the general situation of future irradiation facilities (mostly in relation to requirements from the experiments, and also in view of AIDA).

#### **5: Discussion on CERF++**

There are no new developments since Ilias' presentation at the ATOP days (March 2009) and the subsequent discussions and presentations on CERF++ at the 2009 WG meetings. The WG discussed suitable steps to be undertaken. Concerning the potential SPS implementation, the EN-MEF group was asked to prepare a draft implementation plan. The PS East Hall implementation was also discussed, as it would possibly come at a lower cost and could become part of the overall East Area renovation plans. The incompatibility with the DIRAC experiment was again mentioned as a major concern.

Action: Prepare a new draft specification document and draft implementation plan of CERF++ at SPS (or PS?) for discussion at the WG and with EN-MEF group (Ilias Efthymiopoulos)

#### **6: Discussion on the strategy for the working group**

Lucie presented a few slides with questions concerning (post-Chamonix) strategy and membership of the WG.

- It was decided that there was no need to require input from new users groups (e.g. Booster upgrade) to the questionnaire, as it was unlikely that this could change our global conclusions about the needs for future irradiation facilities.

- It was decided that there was no need for a next iteration on the “conclusions” memo of December 2008, as the principal requirements laid down in the memo remain unchanged.
- There was a consensus that the yellow report in its planned form would not be easy to compose. The time-span between the polling on requirements for irradiation facilities (2008) and the final implementation of all 4 facilities will (unavoidably) be too long. It was decided to rather publish the summary of the user-input together with a summary of the requirements for future irradiation facilities as soon as possible.
- The WG discussed the present list of WG members. The WG had received an email from Yves Thurel, where Yves questioned the need for him to continue as a member of the WG. Yves’ participation was mostly motivated by providing relevant input related to power converters. As this task is now completed, Yves’ participation as a member is no longer indispensable. He remains our contact in case further questions may arise. It was felt that there was no clear role for F. Corsanego within the activities of the working group, as the WG’s activities do not include implementation details at the general safety level. Following consultation within the EN-STI group, it was decided that both Roberto Losito and Markus Brugger will both remain members, while Markus will generally represent EN-STI at the meetings.

#### Actions:

- Finalisation of the document describing the requirements for proton (slow extraction) and mixed-filed requirements (resp. M. Moll, H. Vincke)
- Finalisation of a document describing the requirements for proton and ion irradiations (fast extraction). (resp. R. Assmann)
- Finalisation of a document describing the requirements for gamma irradiations (resp. M. Capeans)
- Update the members list on the web and the email list (M. Moll, L. Linssen)

#### 7: Preparation of the EIROFORUM presentation Lisbon (see slides)

Michael introduced the aims of the EIROFORUM workshop on radiation hardness, the CERN participation to the workshop, and a draft layout of his talk. The WG commented that the EIROFORUM workshop would be a good opportunity to make CERN’s facilities known to external (non-HEP) users.

**The next meeting will take place on April 14<sup>th</sup> at 14:00 hrs.**