

HL-LHC Collimators: Design, Engineering and Prototyping #20 Minutes

Wednesday, 26th April 2018

112-2-023

Attendees: A. Bertarelli (AB), F. Carra (FC), C. Bahamonde Castro (CBC), E. Berthome (EB), I. Lamas Garcia (ILG), E. Rigutto (ER), J-P. Corso (JPC), C. Adorisio (CA), G. Cattenoz (GC), S. Pelletier (SP), M. Pasquali (MP).

AGENDA:

- Approval of minutes from previous meeting and review of action list;
- Update on design of passive absorbers for IR7 magnets
- Open discussion on passive absorbers for IR7 magnets
- AOB.

1) *Approval of minutes from previous meeting and review of action list*

Minutes checked and approved.

2) *Update on design of passive absorbers for IR7 magnets*

EB shows the new design for passive absorbers: it features a new supporting structure composed of two main parts to ease its transportation. Moreover, as requested, the previous shims-based adjustment system has been replaced by a screws-based one. The five longitudinal blocks consist of a lower, a middle and an upper part. All lower, middle and upper parts can be separately transported to the foreseen deployment location to be there pre-assembled to form 3 sections weighing less than 1000 kg each for 2.5 m of total length.

3) *Open discussion on passive absorbers for IR7 magnets*

CA asks if it is possible to limit the dimension of the absorber to the originally foreseen 2 m as the mass deployed in radioactive areas should be minimized: CBC replies that this would not endanger the shielding capability of the absorber, as FLUKA simulations were carried out considering a 2 m-long absorber. AB stresses out that the reduction of the absorber length should only affect the fins region of the blocks, leaving their bulk part unchanged. Everyone eventually agrees in going back to the original 2m-long design for the absorber.

SP states that the actual maximum allowance of the elevator to be used to transport the absorber's parts (B613?) is 800 kg for a maximum dimension of 1.7 m. These will be respectively brought to 1500 kg and 2 m once the currently ongoing enhancement of the elevator will be completed. In this case, the three horizontal sections of the absorbers

could be transported already assembled. FC asks then SP to carry out a simulation of the transport considering 2 m-long sections (**action S. Pelletier**).

Given the small tolerances foreseen for the parts, ER suggests to substitute the mushrooms featured in the present design to ease the vertical assembly of the three sections composing the absorber with conical elements (**action E. Berthome**). Moreover, ER states that the current design of the absorbers is more complex than the one originally foreseen, requiring a new assessment of the manufacturing costs (**action E. Rigutto**).

AB points out that the absorber will be installed at the end of LS2, implying that the manufacturing phase has to be completed in the first half of 2020. Drawings should then be completed by July 2018 (**action E. Berthome**).

Minutes distributed to RP and the FLUKA team.

AOB:

- Nothing to report.

ACTIONS

- Simulate the transport of the absorber considering 2 m-long sections (**action S. Pelletier**);
- Substitute the mushrooms featured in the present design to ease the vertical assembly of the three sections of the absorber with conical elements (**action E. Berthome**);
- Carry out a new assessment of the manufacturing costs (**action E. Rigutto**);
- Complete the drawings of the absorber by July 2018 (**action E. Berthome**).