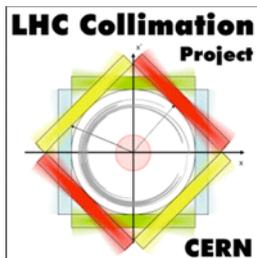


*LHC Collimation Project Meeting
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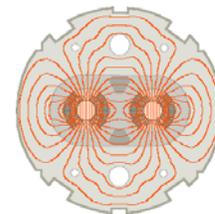
REQUIREMENTS for the 1 m-SCALE APERTURE MODEL of the FULL LHC RING

Verena Kain and Stefano Redaelli

Input from: R. Assmann, O. Brüning, S. Chemli, J.-B. Jeanneret, T. Risselada



*CERN
AB-ABP
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Final goal:

Modelling of the aperture along the ring with a **1-m accuracy**

This is **crucial** for understanding the **beam loss patterns in LHC!**

Requirements:

- Aperture at start / end of **beam screens**
- Aperture at start / end of **vacuum chambers**
- Definition of apertures for **all MAD lattice elements**
- Definition of aperture in **special elements** (TANs, recomb. chambers)
- **Transitions** between different beam screens or vacuum chambers
- Settings of **movable elements** (collimators, movable absorbers)

1. Aperture of **beam screens**:

Model is “almost” there: MAD markers are used to set start and end of BSs

BUT: Some information is still missing → input from Vacuum Group
(Input from S. Chemli, H. Prin, N. Kos, P. Cruikshank, C. Boccard, P. Rohmig)

Some **debugging** is required (differences between B1/B2)

Change **orientation** at some locations → script by VK

Add labels “start” (s) and “end” (e) in the marker’s name?

2. Aperture of **vacuum chambers**:

All information available in the data base → “easy” to generate sequences

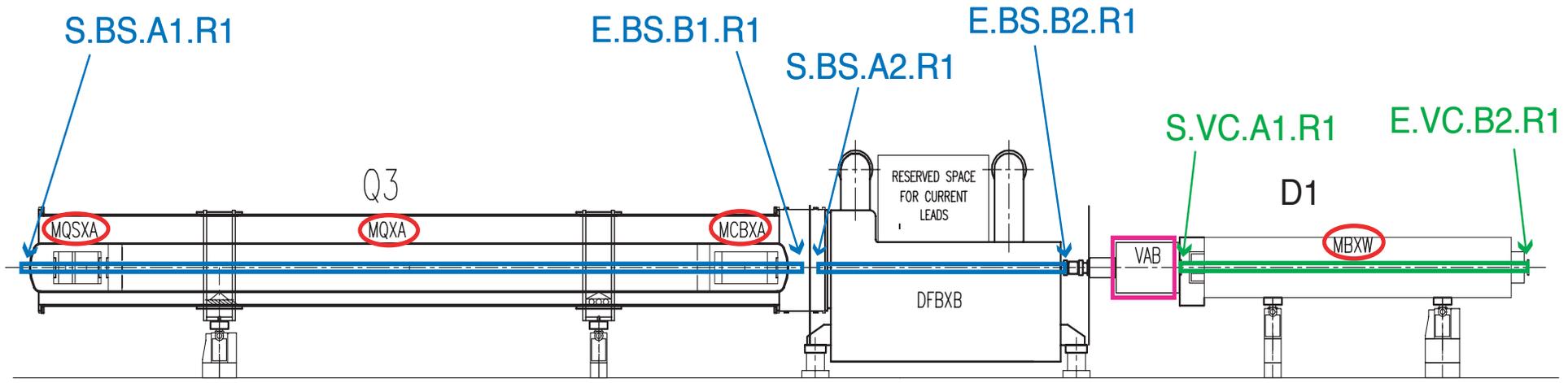
BUT: Layout **highly unstable**, variation on the week time-scale

Proposal: Freeze a working version and update it every ~ month

3. **Lattice elements** (cold + warm, BPMs, ...) **MUST ALL** have an aperture!

*Proposed discussion at the next **Collimation Working Group Meeting***

Example - Cold-warm transition at the right side of IP1.



Special elements (TANs, recombination chambers):

Dedicated definitions are required → VK and SR can help

Transitions:

≤ 1 m → The can be neglected!

> 1 m → Interpolation will be done between available markers

Collimator jaws and movable absorbers:

No required sequence - settings must be defined by the users!