Discussion on Roman Pots
Controls aspects

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Outline: 1. Configuration of 2009 system
2. Middle- and low-level architecture choices
4. Availability of the controls test stand
3. Machine protection aspects
Introduction

☐ Summer 2008: agreement on FESA interface architecture for the control of Roman pots as collimators (one or two “jaws”)
EDMS document: **LHC-TC-ES-0002-20-00**

☐ Latest version released last week with **minor updates** that followed up a system optimization based on 2008 operation

☐ This meeting follows-up a meeting with Mathias, Sylvain and myself on **Nov. 10th**, where we discussed
- Readiness of the first FESA implementation for RP s
- To-do s to achieve the test stand
- machine protection aspects

☐ **Bottom line:**

*OP will move the Roman pots from the CCC upon TOTEM requests. OP will define operational windows for each pot. TOTEM is responsible to ensure the machine protection functionality of the system (e.g. based on position survey).*
Configuration of 2009 system

- We need to define the configuration for the 2009 system

Proposal:
- Two pots of one unit (e.g. 2 vertical pots) defined as 1 FESA device [1 collimator with two jaws]

Constraint:
- Respect the official layout names (e.g. XRPH.B6R5.B1) to ensure compatibility at various levels

Advantages: same definition of beam-based parameters such as orbit position and beam size; no operational limitations on possibility of moving them independently.

To be defined: how many pots will be installed and available for operation?
Potential issues found on the architecture design:

- “Machine state” per PXI and not per device
- Settings defined per PXI and not per device

Drawbacks:

- Romans pots are not independent (how do we move two separately if they share the same “state”?)
- Is it safe to internally load settings and arm all devices if only 1 is being moved?

Proposal:

- Define a machine state per device at all control levels, as it is done for the collimators (and basically all other device in the machine)
Availability of controls test stand

- Need to finalize the configuration for the pot(s) for the controls test stand on surface
- We required to fill basic mechanical information on the pot
  
  Templates provided to Mathias and Sylvain
- When this info will be available, we will provide a first version of an instance of the control application for the first debugging phase
- Configuration of the required controls infrastructures in LSA will follow
During the discussion, I realized that there are aspects of the Roman pot controls are not compatible with "standards" for machine protection:

- Calibration procedures for LVDT’s: no mechanical fixed reference exist for calibration in the tunnel
- All 24 devices share one single PXI (can we check the interlock limits at 100 Hz?). Collimators: 2-3 per PXI!!!
- No timing card. Limits vs energy or squeeze factor?

Proposal:
Present calibration procedures for tunnel installation and final system implementation in a joint machine protection/collimation meeting