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A quality assurance approach for the Full Remote Alignment System

The Full Remote Alignment System consists of multiple monitoring and alignment sub-systems with micrometric resolution for the position determination and alignment of accelerator components in the High-Luminosity Large Hadron Collider. A dedicated research was undertaken, with the objective to create an asset management environment for the equipment of the Full Remote Alignment System and integrating the system in the limited space available for the tunnel installation. Experience from previous interventions was analyzed to account for installation constraints experienced in similar projects and their consequences for the internal organization of the teams in charge of the installation. Furthermore, CERN tools were identified for their use in the asset management and information tracking of the sensors. This paper describes the development of a framework to provide a complete asset management capable to store the obtained information during validation and calibration processes of the equipment and provide this information to other interfaces. Additionally, it describes the activity sequences and the time required for the installation of the Full Remote Alignment system to HL-LHC. The overall concepts for asset management and group internal coordination are established and time-dependent interfaces towards other CERN groups are identified. The created action plan allows the implementation of CERN tools-based asset management for mechanical components together with an infrastructure to efficiently track these assets. Time relevant information based on the project's baseline planning are harmonized between the group's internal and the project's coordination.

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