

CONFIGURATION MANAGEMENT PLAN FOR INTERLOCK SAFETY SYSTEMS AT THE LINAC COHERENT LIGHT SOURCE (LCLS)

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Abstract

Safety critical systems require more than good design in order to provide adequate safety assurance: the configuration must be controlled so that system operation is not compromised and coherent maintenance is guaranteed; new designs and design changes must be thoroughly examined and rigorously reviewed to ensure the system operates as intended; routine system testing must be performed to ensure system's resiliency and to reveal covert un-safe failures; documentation, plans, guidelines and procedures must be properly managed to ensure appropriate implementation, testing, and troubleshooting. This paper shows how a Quality Assurance (QA) Program which incorporates elements of IEC61508, ANSI/ISA 84.01, and ISO9001 standards has been implemented in the SLAC National Accelerator Laboratory to design and operate Safety Interlock Systems for the LCLS facility. The aim is to create a tailored QA program that satisfies the above mentioned requisites, as well as the Department of Energy's 'Integrated Safety Management System' requirements.

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