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C1Or2A-02: LCLS-II Cryoplant Operational Availability: 3 Years of Operation

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The LCLS-II X-ray light source, powered by a 700-meter superconducting LINAC, is supported by two 4 kW @ 2.0 K cryoplants. The first cryoplant, commissioned in 2021, successfully cooled the LINAC in March 2022. This paper provides a detailed analysis of the cryoplant's operational performance and reliability over the subsequent three years of continued operation. Key metrics, including Mean Time Between Failures (MTBF) and Mean Time to Recovery (MTTR), are evaluated. The paper also highlights operational challenges, and the strategies implemented to enhance system availability and reduce downtime. These insights aim to guide the design and operation of future large-scale cryogenic systems, with a focus on improving availability and reliability.

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