

LLRF CONTROLS OF THE S-BAND TRANSVERSE DEFLECTOR CAVITY FOR LCLS-II

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The S-Band Transverse Deflector Cavity (STCAV) is a diagnostic tool to measure the absolute electron bunch length and beam quality in the LCLS-II Injector at the SLAC National Accelerator Laboratory. The cavity is installed in the diagnostic beamline which receives samples of the main beam at 120 Hz or less, where measurements such as slice emittance and slice energy spread can be performed. The STCAV requires a short burst of RF at 2856 MHz with a power of 400 kW or less. This burst will be provided by the LLRF control system driving a Solid-State Amplifier (SSA) and klystron supplied by ScandiNova Systems AB. The LLRF control system is based on Advanced Telecommunications Computing Architecture (ATCA) platform which has been adopted for many 2856 MHz RF systems at SLAC. In these systems, the 2856 MHz reference is derived from the same base reference used by the 1300 MHz LCLS-II RF, and the LCLS-II timing system will be used. The system architecture and its features will be described in this poster.

Keyword

Transverse cavity

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