

The microwave amplitude and phase setting based on event timing for the DCLS

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The primary accelerator of DCLS (Dalian Coherent Light Source) operates at a repetition rate of 20 Hz now, and the beam is divided at the end of the linear accelerator through Kicker to make two 10 Hz beamlines work simultaneously. For the simultaneous emission FEL of two beamlines, the beam energy of the two beamlines is required to control independently, so we need to set the amplitude and phase of each beamline. This paper implements a microwave amplitude and phase setting function based on event timing. We upgrade the EVG/EVR event timing system and LLRF (Low-Level Radiofrequency) system. Two special event codes and a repetition rate division of 10 Hz are added to the event timing system, and we can set the microwave amplitude and phase by judging the event code in LLRF. We ultimately perform the microwave triggering at a repetition rate of 10 Hz for each beamline and validate this function through beam experiments.

Keyword

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