

Designing kicker magnet power supplies (MPS) for HX-SX simultaneous operation at PAL-XFEL

Thursday 29 August 2024 16:00 (2 hours)

The PAL-XFEL accelerator is operating simultaneous operation of HX (10 GeV) and SX (3 GeV). To facilitate simultaneous operation, kicker MPS is necessary, requiring both AC mode and DC operation mode. AC mode operates with a square waveform at a repetition rate of 60 Hz. It operates as a bipolar type with an output voltage of 200 V and an output current of 45 A. The MPS is implemented using digital signal processing technology, employing DSP, FPGA, ADC, and others. The peak current stability of the kicker MPS showed approximately 50 ppm at a 45 A peak current. The long-term stability at 45 A in DC mode was measured to be 20 ppm peak-to-peak. These test results of kicker MPS indicate that it is sufficient for the stable simultaneous operation of PAL-XFEL.

Footnotes

Funding Agency

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