

Single bunch and multi bunch operation with single klystron using a programmable SLED system

Monday 26 August 2024 16:00 (2 hours)

The Linac for Diamond Light Source has been running with two 3 GHz klystrons, powering two 5.2m-long accelerating structures to deliver 100 MeV electron beam since the start of operation. By introducing a SLED pulse compressor system to generate a pulse capable to power both structures from one klystron, redundancy and reliability will be improved. With a 5 μ s total pulse, it is possible to charge the SLED cavities for 4 μ s and generate a high peak pulse for the last 1 μ s able to power both structures. An arbitrary waveform generator function was implemented in digital low-level RF to generate a flat top pulse, which can be utilized for both single bunch and multi bunch operation. Details of the waveguide network, low-level RF design and high-power operation will be described. Results from full energy operation will also be shown.

Footnotes

Funding Agency

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