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LCLS-II High Power RF Systems Overview and Progress

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A second X-ray free electron laser facility, LCLS-II, is being constructed at SLAC. LCLS-II is based on a 1.3 GHz, 4 GeV, continuous-wave (CW) superconducting linear accelerator, to be installed in the first kilometer of the SLAC tunnel. Multiple types of high power RF (HPRF) sources will be used to power different systems. The main 1.3 GHz linac will be powered by 280 1.3 GHz, 3.8 kW solid state amplifier (SSA) sources. The normal conducting buncher in the injector will use four such SSAs. Two 185.7 MHz, 60 kW sources will power the photocathode dual-feed RF gun. A third harmonic linac section, included for linearizing the bunch energy spread before the first bunch compressor, will require sixteen 3.9 GHz sources at about 1 kW CW. A description and an update on all the HPRF sources of LCLS-II and their implementation is the subject of this paper.

*Work supported by DoE, Contract No. DE-AC02-76SF00515

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Summary

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