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The PSI Compact 500MHz 65kW High Power Solid-State Amplifier

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The Paul Scherrer Institut currently operates a klystron amplifier on the booster ring of the Swiss Light Source (SLS). In order to have an optional RF source for the booster cavity, we have been developing a compact 500MHz –65 kW solid state RF amplifier. An important goal in this development is the optimization of efficiency at any given operating point. With this technique it is possible to maximize the overall efficiency at any given RF output power. Considerable effort has been made in order to obtain extensive measurements from each individual module with the aim of investigating the behavior of such a large number of combined arrays. We will discuss the amplifier design and present the results of measurements.

Summary

We describe the present solid-state amplifier design developments in the Swiss Light Source. The main performance results of the present installation are also described giving emphasis to efficiency optimization.

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