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Upgrade of the 1.3 GHz Resonant Ring for High Power RF Test of Accelerator Components

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Since 2009 the ELBE center for high power radiation sources is using a 1.3 GHz resonant ring for RF conditioning of power couplers and to test different waveguide components. The poster describes the ring and two new features that are improving the ring significantly. First, a PLL system is used to stabilize the RF-power in the ring which normally drops with increasing temperature because the frequency of the structure shifts. And second, an adjustable test waveguide was designed that allows perfect matching of a pair of RF-couplers with different antenna tip lengths. All measurements are in good agreement with simulations and the ring is now routinely in use for travelling wave measurements of RF components up to 50 kW CW.

Summary

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