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## High Power Test Results of X-Band Dielectric Disk Accelerating Structures

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As part of the Argonne 500 MeV short pulse Two Beam Wakefield Acceleration Demonstrator, several single cell X-band dielectric disk loaded accelerators (DDA) have been designed, fabricated, and tested at high power at the Argonne Wakefield Accelerator. The DDA should provide a short pulse (~20 ns) high gradient (>100 MV/m) accelerator while maintaining a reasonable  $r/Q$  and high group velocity. This will allow a larger RF-to-beam efficiency than is currently possible for conventional accelerating structures. Low loss ceramics with  $\epsilon_r \approx 50$  were selected based on simulation studies to optimize the RF-to-beam efficiency. One brazed and one clamped structure have been tested at high power, with the clamped structure reaching >100 MV/m accelerating gradient. The results of the high power tests will be presented.

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