

PWM Controlled Microfocus XRF Source

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Oxford X-Ray demonstrated successful implementation of PWM for a grid controlled Microfocus tube, Pinnacles 50. Because the Pinnacles 50 source has a grid controlled beam current, and the electron gun is near ground potential, it is particularly well suited for these experiments. The results expand the application of micro-focus x-ray techniques into time resolved XRF, imaging and micro-CT domains. The fastest pulse width demonstrated was sub-millisecond with frequencies as high as 100 Hz. With this technique moving objects with periodic features or with periodic motion may be characterized by accumulating data over many periods. Single exposure data acquisition may also be possible with this source or brighter sources such as the Oxford UltraBright source. In XRF applications, maintaining constant beam energy during the pulse is advantageous in maintaining stable spectrum features.