



Orion: Target diagnostic

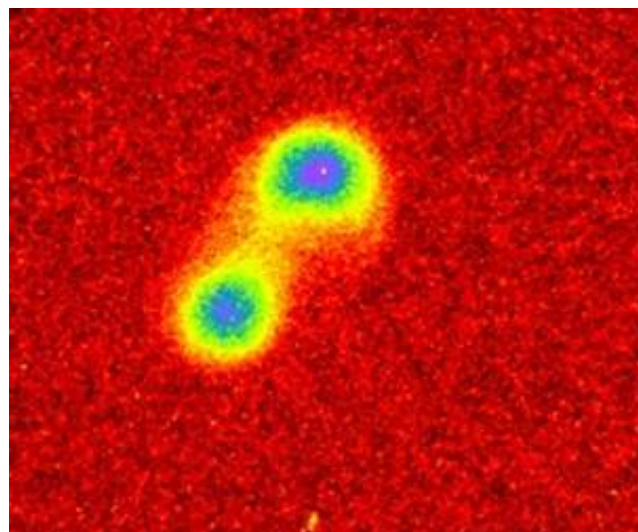


KB X-ray Microscope (KBXRM)

The Orion laser facility at AWE Aldermaston, one of the largest scientific capital investments in the UK, houses a large neodymium glass laser system and a target chamber in which the high energy density physics experiments are performed. This is necessary to support certification of performance and safety of the UK deterrent.

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The KB X-ray Microscope (KBXRM) used on Orion is an imaging system with a large field of view and high spatial resolution. It is designed to confirm beam pointing on a shot-to-shot basis and recording the 2D time-integrated images on electronic detectors. For ease of operation, the microscope employs electronic image readout and controls. The microscope allows assessment of laser spot size, shape, structure and position, and achieves this by using pairs of spherical grazing angle mirrors in the Kirkpatrick-Baez (KB) geometry.



Specification

Spectral range:	100 eV to 3 keV
Field of view:	2 mm
Resolution:	Across field of view >35 μm At centre of field >10 μm

Two microscopes are used in the Orion Target Chamber providing time integrated images of the X-ray emission from the target. They are sensitive to emissions in the photon energy range 100 eV to 3 keV and are capable of imaging X-rays at high resolution: better than 10 μm in the centre, and better than 35 μm at the edge of the 2 mm field of view.