



Orion: Target diagnostic



XUV Grating Spectrometer

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.

www.awe.co.uk

The XUV Grating Spectrometer is a soft X-ray diagnostic, making spectrally resolved measurements of the radiation produced in laser/plasma interactions in the range of 1-40 nm with a high spectral resolution (~1000). The spectrometer is deployed inside an Orion Ten Inch Manipulator (TIM) and interfaces with X-ray Streak Cameras, Gated X-ray Imagers or Soft X-ray Charge Coupled Detectors (CCDs). Interfacing with an X-ray streak camera, allows the emission to be temporally resolved, with the temporal resolution defined by the sweep speed of the camera.



Specification

TIM based

Spectral range: 1-40 nm

Spectral resolution: ~1000

Diffraction gratings: 1-10 nm and 10-40 nm

The XUV Grating Spectrometer has the option to use one of two diffraction gratings, providing the dispersive element in the range of 1-10 nm and 10-40 nm to provide the required spectral resolution across the 1-40 nm range.