



**Orion:** Target diagnostic

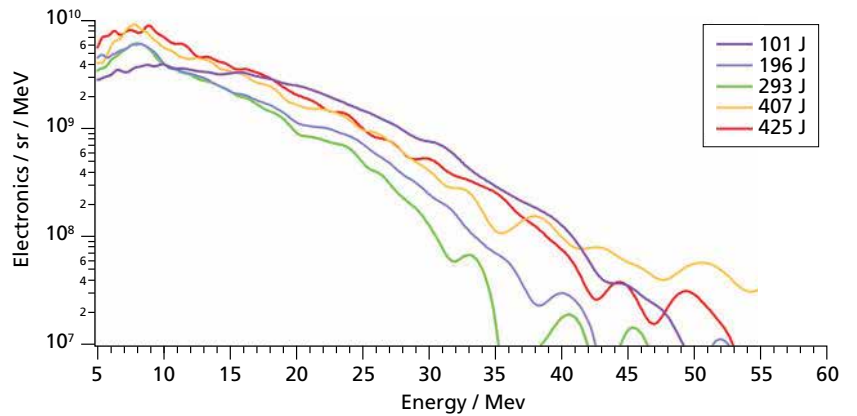
A photograph of the Orion laser facility building at AWE Aldermaston. The building is a large, modern structure with a curved, metallic facade and a large, dark, arched entrance. The image is overlaid with a semi-transparent blue and teal gradient.

## Electron Positron Proton Spectrometer (EPPS)

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](http://www.awe.co.uk)

The Electron Positron Proton Spectrometer (EPPS) is an LLNL designed instrument that is fielded on Orion. It is a TIM-based charged particle spectrometer that uses permanent magnets generating an internal magnetic field of approximately 0.8 Tesla. The magnetic field spreads out incoming particles, which then strike one of two image plates depending on their charge.



### Specification

TIM based	
Magnetic field:	0.8 Tesla
CofG to TCC:	751 mm
Image plates:	Fuji - SR-2040
Weight:	39.5 kg

The EPPS weighs approximately 39.5 kg and therefore requires lifting aids. The diagnostic does not require power, chilled water, timing or communications. All materials are vacuum compatible and the alignment method utilises a removable ruby tipped pointer.

The EPPS can be used in TIM44 or TIM104 directly opposite one of the short pulse beam parabolas.