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 Broad-Band X-ray Diffraction Diagnostic (BBXRD) is a small, passive, device that is deployed in an Orion Ten Inch Manipulator (TIM). It is a type of Laue camera used to record X-ray diffraction data from single-crystal samples of different materials (typically crystals of silicon, iron and tantalum). The diagnostic consists of a pyramid-shaped enclosure containing X-ray imaging plates mounted internally at its four sides and one or more single-crystal samples mounted from its square base. X-ray radiation from a laser-illuminated target enters the smaller end of the diagnostic enclosure through a collimating pinhole or slit, and propagates along the axis of the enclosure to the crystal sample. Diffracted radiation is recorded by the imaging plates.

**Specification**

TIM based  
Positional alignment accuracy: < 500 µm  

**Dimensions**

Uni-mount to TCC: 273 mm  
Front to TCC: 40 mm  
Large end: 65 x 65 mm  
Small end: 30 x 30 mm  
Length: 50 mm