

# Electronic Imaging Diagnostics



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The origins of specialised imaging diagnostics evolved from underground test programmes. The current imaging team encompasses the capability to operate, develop and maintain electronic camera systems for scientific research. Expertise embraces solid state imaging, calibration and characterisation, nanosecond shuttering, radiation effects on imagers, single event capture, fast framing, radiography imaging, analysis, fielding and trials deployment in hazardous environments. A number of research papers have been published and presented at premier International Conferences upon our imaging concepts. International Patents have been granted upon our diagnostic concepts.

The accompanying posters depict some state of the art diagnostic imaging techniques that have been developed by AWE's scientists assisted by Sandia and Los Alamos National Laboratory personnel under collaborative programmes. The diagnostics have been deployed on AWE's and Sandia's High Energy Nanosecond X-ray Pulse Accelerators.

These accelerators are primarily used to test components under high irradiation dose conditions and the imaging diagnostics provide valuable information to the experimenter and accelerator designers.

A highlight featured is the video of a multi-billion frames per second imaging sequence, utilising Streak-Tomographic recording techniques. This is believed to be a world record for the highest frame rate attained commensurate with the number of frames recorded by a single camera system.



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*Saturn Transmission Line Drivers*



*Saturn Camera Installation*



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