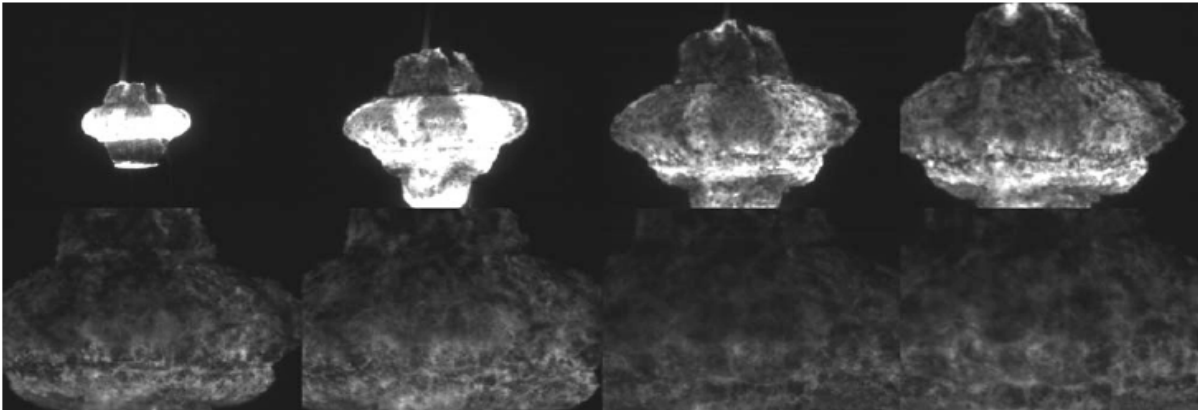




Specialised Imaging

Application Note 13

Using the SIMD8 Ultra High Speed Framing Camera to record high explosive detonation



IMAGING PARAMETERS

A 80-200 mm Nikon zoom lens was used with the SIMD-8 Framing camera to give a field of view of 30.5cm (L) X 25.4cm (H). The camera working distance was 3m. Trigger timing and detonation firing was synchronized by use of an external delay generator.

EQUIPMENT PARAMETERS

The SIMD-8 was programmed to take an 8 frame sequence with initial delay of 15 μ s, with equally spaced interframe times of 10 μ s (at 100,000 fps). Exposure time for all frames was programmed for 20ns. Gain was set at 2 out of 8 steps, on all channels. Light is supplied by self luminosity of the event.

OVERVIEW OF EXPERIMENT

Eight ounces of high explosive was suspended from the ceiling of a blast containment chamber. The camera was sited 3m away looking through a polycarbonate viewing port to protect the lens. The purpose of the experiment was a proof of principle to show that the SIMD-8 camera could image the extreme brightness of the explosive fireball with no crosstalk from later frames into earlier frames, with minimal or no phosphor lag. As shown in the image - no cross talk or ghosting is present in either the early or later frames. The image also shows 12-bit dynamic range throughout the event.

