

Abstract Submitted
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VISAR blanking due to preheating in a 2-pulses planar experiment at LULI facility LAURENT VIDEAU, STEPHANE LAFFITE, CEA, DAM, DIF, SOPHIE BATON, LULI, Ecole Polytechnique, PATRICK COMBIS, JEAN CLEROUIN, CEA, DAM, DIF, MICHEL KOENIG, LULI, Ecole Polytechnique, VANINA RECOULES, CHRISTOPHE ROUSSEAU, CEA, DAM, DIF — Optical diagnostics, such as VISAR (Velocity Interferometer System for Any Reflector), have become essential in shock timing experiments. Their high precisions allow an accurate measurement of shock velocities and chronometry. But, measurements can be compromised by x-ray preheating. In planar shock coalescence experiments recently performed at the LULI facility [1], VISAR signal loss was observed. In these experiments, a strong shock, launched by a high-intensity spike, catches up with a first one, initially launched by a low-intensity beam. VISAR signal disparition is due to x-ray generated by spike absorption in corona. It does not occur if high-intensity spike starts after VISAR probe beam begins to reflect off the first shock. Based on optical index assessment in quartz, VISAR diagnostic is modeled and compares favorably to experimental results. This provides evidence of the impact of x-ray preheating on VISAR absorption in quartz.

[1] S. D. Baton et al, Phys. Rev.Lett. 108, 195002 (2012)

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