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Development of Dual High Energy Backlighting at the Omega and National Ignition Facility[1] SHAHAB KHAN, DAVID MARTINEZ, DANIEL KALANTAR, SCOTT WILKS, ANDREW MACKINNON, SHON PRISBREY, THOMAS DITTRICH, DAVID ALESSI, CHRISTOPHER SANTOS, NEIL OSE, JONATHON WARD, Lawrence Livermore Natl Lab — The Advanced Radiographic Capability (ARC) is used to record radiographs of complex targets at the National Ignition Facility. This is achieved using point-projection backlighting where the ARC beamlets are focused onto a single Tungsten wire to generate a single snapshot of the hydrodynamic evolution of the target. In order to provide more accurate information, to reduce the requirement on repeatability of the target performance, and to reduce the number of experiments required to assemble a detailed time-sequence of the hydrodynamic evolution of the target, it is desired to be able to record two images per experiment with a time-separation of 3 ns. Here, we outline the development activities required to demonstrate dual radiograph capability using two wire sources in close proximity with a large time separation between them. The main challenge in this endeavor is evaluating and mitigating potential "cross talk" between the two wires. Recent Omega EP experiments have demonstrated that the emission from one backlighter detrimentally affects the performance of the second backlighter due to the proximity of the wires to each other as well as the long-time interval necessary between the two snapshots. NIF and Omega experiments are underway to test shielding options to mitigate the cross talk between the wires.

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