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Bright X-ray Source Development at the National Ignition Facility M.J. MAY, K.B. FOURNIER, J.D. COLVIN, M.A. BARRIOS, K. WIDMANN, H. CHEN, M. SCHNEIDER, LLNL, Y.P. OPACHICH, NSTec, S.P. REGAN, UNR — High x-ray conversion efficiency (XRCE) K-shell and L-shell sources are being developed for High Energy Density (HED) experiments for use as backlighters and for the testing of materials exposed to high x-ray fluences. Sources with high XRCE in the Xe L-shell and Mo, Fe and Kr K-shell have been investigated at the National Ignition Facility. These targets were either 4.1 mm in diameter and 4 mm tall hollow tubes lined with $\sim$3 μm of metal or similarly sized gas pipes pressurized to 1 - 1.5 atm. The target walls were $\sim$50 μm thick. Either 160 or 192 beams of the NIF laser were used to deposit between 350 - 1330 kJ of 3ω light into the target in 3.3 to 14 ns pulses. The absolute x-ray emission of the source was measured by two calibrated Dantes, which are filtered x-ray spectrometers. Time resolved images filtered for the L- and K-shell were recorded to understand the heating of the target. Time resolved and time integrated high resolution (E/dE $\sim$100) spectra were recorded. Details of the experiment and XRCE's will be discussed. This work was done under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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