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Two-Plasmon-Decay Hot-Electron Distributions from Bremsstrahlung Measurements J.F. MYATT, D.H. EDGELL, W. SEKA, A.V. MAXIMOV, R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester — Preheat caused by hot electrons from the two-plasmon-decay (TPD) instability has been implicated in the reduction of fuel areal density ρR in direct-drive implosions on OMEGA.Hard x-ray measurements have been performed using a four-channel, hard x-ray detector (HXRD) with surrogate targets at an intensity of 5×10^{14} W/cm^2. A bremsstrahlung model has been developed assuming that the electrons are produced within a cone of half-angle Θ and exponentially distributed in energy, characterized by T_{hot}. The angular-dependent signals of the HXRD channels are consistent with $T_{hot} = 120 \pm 20$ keV and a half-angle of $\Theta = 10 \pm 5^\circ$. The possible origin of such a distribution and its implications will be discussed. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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