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Ultraviolet Thomson Scattering from Direct-Drive Coronal Plasmas in Multilayer Targets R.J. HENCHEN, V.N. GONCHAROV, D.T. MICHEL, R.K. FOLLETT, J. KATZ, D.H. FROULA, Laboratory for Laser Energetics, U. of Rochester — Ultraviolet ($\lambda_{4\omega} = 263$ nm) Thomson scattering (TS) was used to probe ion-acoustic waves (IAW's) and electron plasma waves (EPW's) from direct-drive coronal plasmas. Fifty-nine drive beams ($\lambda_{3\omega} = 351$ nm) illuminate a spherical target with a radius of $\sim 860\mu$m. A series of experiments studied the effect of higher electron temperature near the 3ω quarter-critical surface ($\sim 2.5 \times 10^{21}$ cm^{-3}) on laser–plasma interactions resulting from a Si layer in the target. Electron temperatures and densities were measured from 150 to 400 μm from the initial target surface. Standard CH shells were compared to two-layered shells of CH and Si and three-layered shells of CH, Si, and CH. These multilayer targets have less hot-electron energy than standard CH shells as a result of higher electron temperature in the coronal plasmas. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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