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Ultraviolet Thomson Scattering from Direct-Drive Coronal Plasmas 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$860 μm. Advances in the ultraviolet (UV) TS diagnostic at the Omega Laser Facility provide the ability to detect deep UV photons ($\sim$190 nm) and allow access to scattered light from EPW's propagating near the 3ω quarter-critical surface ($\sim 2.5 \times 10^{21}$ cm^{-3}). A series of experiments studied the effects of ablator materials on coronal plasma conditions. Electron temperatures and densities were measured from 150 μm to 400 μm from the initial target surface. Standard CH shells were compared to three-layered shells consisting of Si doped CH, Si, and Be. Early analysis indicates that these multilayered targets have less hot-electron energy as a result of higher electron temperature in the coronal plasma. 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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