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Rayleigh-Taylor and Richtmyer-Meshkov instability experiments in cylindrical geometry at OMEGA GLENN MAGELSSEN, J.R. FINCKE, N.E. LANIER, S.H. BATHA, N.D. DELAMATER, R.M. HUECKSTAEDT, J.M. TACCETTI, Los Alamos National Laboratory, K.W. PARKER, C.J. HORSFIELD, S.D. ROTHMAN, AWE Aldermaston, United Kingdom, LOS ALAMOS-AWE COLLABORATION — Understanding Rayleigh-Taylor and Richtmyer-Meshkov instabilities for inertial confinement fusion (ICF) capsules is an important goal for the National Ignition Facility (NIF). We have completed Rayleigh-Taylor instability experiments in cylindrical geometry on the University of Rochester laser facility, OMEGA. Unlike previous experiments, for the experiments we will describe the perturbations were placed on the inside of the AL marker that was between an outer epoxy ablator and an inner CH foam region. The foam density was varied to control the amount of deceleration experienced by the marker layer. The cylinder was directly imploded with 50 laser beams. Unlike our outside perturbation, 60 mg/cc experiments that showed significant growth, no instability was seen for similar experiments with inner perturbations. On the other hand, for a foam density of 500 mg/cc we saw significant and similar growth for 0.1, 2.5 and 9 micron wavelength and 0.1 to 1 micron amplitude perturbations. Comparisons between the RAGE code calculations and the experiemnts will be shown

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