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Off-Axis NBCD Experiments in DIII-D,* J.M. Park, M. Murakami, *ORNL*; C.C. Petty, M.A. Van Zeeland, J.R. Ferron, T.H. Osborne, P.A. Politzer, R. Prater, *GA*; W.W. Heidbrink, *UCI*; C.T. Holcomb, *LLNL*; D.C. Pace, *ORISE* – Experiments on off-axis neutral beam current drive (NBCD) in DIII-D have clearly demonstrated off-axis NBCD using the new tilted beamline. The local NBCD and beam ion density profiles were measured in H-mode plasmas under a range of beam injection and discharge conditions, including on/off-axis, parallel/perpendicular injections, beam energy, injection power, toroidal field direction, plasma beta, and ratio of beam energy to electron temperature. For the off-axis injection, the magnetic pitch angles measured by the motional Stark effect diagnostic show clear evidence of off-axis NBCD when compared with the on-axis injection at the same electron temperature and density. The beam-stored energy estimated by equilibrium reconstruction, neutron, and fast-ion D-alpha data indicate no large anomalous losses of NBCD and fast ions. The measurements are compared with the classical model calculation using NUBEAM for validation of the off-axis NBCD physics.

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