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SOL width scale lengths in NSTX JOON-WOOK AHN, JOSE BOEDO, UCSD, RAJESH MAINGI, ORNL, VLAD SOUKHANOVSKII, LLNL, HENRY KUGEL, LANE ROQUEMORE, PPPL — The SOL T_e and n_e profiles have been investigated with a mid-plane fast reciprocating probe in NSTX. The SOL plasma consists of two regions; a region close to the LCFS where a steep gradient of the profile is observed (*ie* near SOL region) and a region further away from the LCFS where a flatter profile is observed (*ie* far SOL region). It was observed that the near SOL T_e and n_e decay lengths (λ_{Te} and λ_{ne}) became significantly longer in L-mode compared to H-mode (a factor of $\sim$2 increase in λ_{Te} and $\sim$3 increase in λ_{ne}). It was found that both λ_{Te} and λ_{ne} in the near SOL decrease with increasing plasma current (I_p) in H-mode (from λ_{Te} $\sim$3cm to $\sim$1cm and λ_{ne} $\sim$2cm to $\sim$1cm with I_p variation from 0.8MA to 1MA). Near SOL λ_{Te} and λ_{ne} in L-mode increased (λ_{Te} $\sim$0.7cm to $\sim$1.1cm and λ_{ne} $\sim$1.5cm to $\sim$2.1cm) with increasing line averaged density (from 2.7 to 3.1x10^{13}cm^{-3}) and decreased (λ_{Te} $\sim$1.7cm to 0.4cm and λ_{ne} $\sim$1.3cm to 0.5cm) with increasing input power (P_{NBI} $\sim$1MW to 4MW). A comparison with Thomson Scattering (TS) data shows a reasonably good match for T_e and n_e profiles. *This work was supported by U.S. DOE contract # DE-FG02-03ER54731 and DE-AC02-76CH03073.*

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