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Turbulence characteristics in the edge region of ECH L-mode plasmas with different densities[1] MINJUN CHOI, HOGUN JHANG, HYUN-SEOK KIM, National Fusion Research Institute, THE KSTAR TEAM TEAM — Characteristics of low-k ($k_\theta r_i$ <0.5) electron temperature fluctuations has been studied in the edge region of ECH L-mode plasmas with different line averaged densities (n_e). The spectral analysis of electron temperature fluctuations revealed the existence of dual modes having opposite phase velocities in the lab frame (v_L). Modes with v_L <0 (in the ion diamagnetic direction) are observed in the broad radial region (r/a = 0.6—0.9), while modes with v_L >0 (in the electron diamagnetic direction) are observed locally in the edge region (r/a ˜0.9). The amplitude of the ion modes depends strongly on n_e, i.e. it decreases as n_e increases with the additional gas puffing and becomes undetectably small when n_e is high (3.0e19 m^{-3}), while the amplitude of the electron modes is affected little by n_e. Therefore, in the edge region the ion modes are dominant when n_e is low (1.5e19 m^{-3}) and vice versa. The co-existence of dual modes is observed in the L-mode edge with the intermediate n_e (1.5 <n_e <2.0e19 m^{-3}). This observation shows that the turbulence distribution in the ECH L-mode edge can change with n_e (or T_e since the ECH power was kept constant during the gas puffing).

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