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Quasi-Periodic Transport Events during the Transition from Low to High Confinement Modes in the KSTAR Tokamak and the Large Helical Device[1] G.S. YUN, J.H. LEE, J. LEEM, W. LEE, H.K. PARK, Pohang University of Science and Technology, T. AKIYAMA, National Institute of Fusion Science, N.C. LUHMANN, JR., University of California, Davis, J.G. BAK, National Fusion Research Institute, KSTAR TEAM — Quasi-periodic bursts of RF radiations in a broad frequency range ($\sim$ 100 MHz – 1 GHz) with a typical period of $\sim$ 1 ms are routinely observed during the early transition phase from low (L) to high (H) confinement modes in the KSTAR tokamak plasmas. No noticeable change in the D_α emission was observed at the time of RF bursts, suggesting that the RF bursts are not related to the so-called "dithering" behaviour in the L-H transition. Interestingly, each RF burst corresponds to a tiny transport event localized in the edge region according to 2D images of the plasma edge measured by electron cyclotron emission imaging (ECEI) diagnostic, which is also supported by the con-current burst of ion saturation currents measured at the divertor. These observations may indicate the existence of radially-localized non-ambipolar transport events during the L-H transition. Similar quasi-periodic RF bursts have been observed in the Large Helical Device (LHD), suggesting the existence of a common mechanism for L-H transition in tokamak and stellarator devices.

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