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Electron Bernstein Wave Experiments in the Low Aspect ratio Torus Experiment Device YUTO NOGUCHI, TADAHIKO FUKUNAGA, MASAKI UCHIDA, HITOSHI TANAKA, TAKASHI MAEKAWA, Graduate School of Energy Science, Kyoto University — Two kinds of EBW experiments have been done on LATE using 2.45 GHz microwaves obliquely injected using open circular waveguide launchers. The vacuum vessel is a cylinder with a diameter of 100 cm and a height of 100 cm, and an 11.4 cm center-post for center conductors for the Bt field with no central solenoid. In the first experiment we inject a relatively high power of 40-60 kW from three 20kW-magnetrons, which non-inductively starts up the discharge and finally maintains a toroidal current of 10 kA with a central plasma density 10 times the plasma cutoff density by EBW heating and current drive at the first propagation band. A wave injection with the optimal polarization for mode-conversion to EBW via one launcher (other two launchers being with usual linear polarization parallel to the mid-plane) improves plasma performance in terms of density and current. In the second experiment we investigate various basic characteristics of EBW, including the mode-conversion and subsequent propagation and absorption of EBW. Here, an 1.5 GHz microwave at 10 W is injected via OXB scheme into an ECR plasma maintained by a 2.45 GHz microwave at 1 kW. The wave field for 1.5GHz microwave is 2-dimensionally measured on the mid-plane using probes attached to a two-joint robot arm.

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