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**Direct Observation of Electron Bernstein Wave on the Internal Coil Device Mini-RT** EIICHI YATSUKA, DAISUKE SAKATA, KIYOTAKE KINJO, Graduate School of Frontier Sciences, University of Tokyo, JUNJI MORIKAWA, YUICHI OGAWA, High Temperature Plasma Center, University of Tokyo — Electron Bernstein Wave (EBW) heating is one of the most promising methods of producing and heating of overdense plasma, i.e., the plasma density is higher than a cut-off density. Overdense plasma was observed with steep density gradient by ECH (2.45GHz, 2.5kW) in internal coil device Mini-RT. Directly measurements of electric field with electron cyclotron range of frequency were carried out, in order to investigate the basic characteristics of mode conversion to EBW. An extra microwave (1.0~2.1GHz, 10W) has been injected with an excitation antenna, and has been directly measured with a receiver antenna inside the plasma column. With the combination of floating and levitation coils, which are located inside and above the vacuum vessel, we can produce a separatrix configuration with a steep density gradient, which is one of important parameters on the EBW mode conversion. With appropriate magnetic configuration and density profile, we can see a characteristic of a short wavelength related with the EBW. In addition, the reversal of phase variation can be observed. Since the EBW is backward wave (direction of phase velocity is opposite to that of group velocity), these experimental results suggest the direct measurement of the EBW.

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