

Abstract Submitted
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Cut-off probe analysis and improvement DAE-WOONG KIM, KAIST, SHIN-JAE YOU, KRISS, BYUNG-KEUN NA, KWANG-HO YOU, HONG-YOUNG CHANG, KAIST, KAIST, LOW TEMPERATURE PLASMA LABORATORY TEAM, KRISS, VACUUM CENTER COLLABORATION — This study investigates the mechanism of microwave frequency transmitted spectrum of cut-off probe and improves the probe based on the results. Simplified circuit modeling reproduces the overall N-shape spectrum and establishes the exact frequency of cut-off peak taking account with the plasma frequency and the collision frequency on the spectrum and it enables diagnostics of the plasma density from low pressure to high pressure. E/M wave simulation (CST microwave studio) reveals that origin of cut-off like peaks and plasma density is acquired from one of them, a probe holder $\lambda/4$ resonance peak applying the hairpin relation. Furthermore, phase difference method for diagnostics of the plasma density is conducted. This method uses a single frequency microwave source and it is low-priced.

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