

Eui-Jeong Son ¹, Sung Hwan Cho ¹, and Ho-Jun Lee ¹

¹Pusan national university, Korea, Republic of

Cutoff probe system with two port network analyzer has been prepared and applied to measure electron density distributions in a large area, 13.56MHz driven weakly magnetized inductively coupled plasma source according to the aspect ratio(0.3~0.7). This cutoff probe system was confirmed that can safely be used for weakly magnetized high density plasma sources through previous research. The results shown that, in case of decreasing aspect ratio the electron density distribution in the radial direction becomes M-shape and the maximum point of the electron density shifts toward the chamber edge because the generation term at the antenna is more dominant than diffusion in the chamber. Also, the non-uniformity in the θ -direction was improved. When the pressure is increased, a difference of the collision frequency and electron cyclotron frequency decreases. As a result, the magnetic field effect becomes smaller and the increase range of the electron density becomes smaller. And the uniformity of the electron density is expected to be improved in case of low pressure and high magnetic field.