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Microwave Imaging Reflectometry in LHD SOICHIRO YAMAGUCHI, YOSHIO NAGAYAMA, SHIGERU INAGAKI, ROSTYSLAV PAVLICHENKO, NIFS, 322-6 Oroshi-cho, Toki 509-5292, Japan, YUICHIRO KOGI, ATSUSHI MASE, KASTEC, Kyushu Univ., Kasuga 816-8580, Japan — The Microwave Imaging Reflectometry (MIR) has been developed in Large Helical Device (LHD) to obtain the the 2-D imaging of the electron density fluctuation in order to investigate of the microturbulence and the magnetohydrodynamic instability. We use the X-mode since its cut off surface is more perpendicular to the illumination direction than the O-mode in LHD. The reflection wave propagates through the imaging optics into the heterodyne detection system. In the previous setup the imaging antenna was fixed and the reflection wave could not be detected frequently in the plasma experiments. The simulation of the wave propagation suggests that the reflection wave does not enter the imaging optics due to tilting of the reflecting surfaces in most operation condition. The new optics has the first mirror, which is driven by supersonic actuators. By steering the mirror to the optimum angle the reflection wave can be received at the detector. It is expected to enable observations in wider range of plasma parameters.

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