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# Recent developments of ECE radiometer and ECEI for low magnetic field operation on LHD

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ECE diagnostics have been used since the beginning of LHD experiments, and now two new ECE systems, both systems cover in Q-band and V-band, have been installed to meet the demand for information on electron temperature fluctuations in low magnetic field strength experiments.
One is a conventional radiometer. The existing radiometer is optimized for high frequencies, so a new light-collecting (focusing) mirror is installed in the vacuum vessel (as shown in Fig.1), and after quasi-optical transmission, a corrugated waveguide is used to guide the radiometer to a millimeter-wave receiver system located about 5 m away from the LHD main body, where a 32-channel filter bank is used to measure the electron temperature. A system was installed to enable measurement of spatial distribution. The other is an ECE imaging system with an 8 (poloidal) x 8 (radial) x 2-band, 128-channel measurement system with a Local-integrated receiver array [1,2].

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References

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