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8.21 Development of a spectroscopic diagnostic tool for electric field measurements in IShTAR

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IShTAR is a linear device dedicated to the investigation of the edge plasma - ICRF antenna interactions in tokamak edge-like conditions and serves as a platform for a diagnostic development for measuring the electric fields in the vicinity of ICRF antennas. We present here our progress in the development of an optical emission spectroscopy method for measuring the electric fields which concentrates on the changes of the He-I spectral line profiles introduced by the external electrical field, i.e. the Stark effect. To be able to fully control the operating parameters, at the first stage of the study the measurements are conducted on a DC-biased planar electrode installed in the centre of the plasma column in IShTAR's helicon plasma source. At the second stage, the measurements are performed in the vicinity of IShTAR's ICRF antenna.

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