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14.37 Visible Spectroscopy Diagnostics For W Source Assessment In The West Tokamak: First Measurements

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The present work concerns the first measurements obtained with the visible spectroscopy diagnostic during the WEST start up. The goal of this diagnostic is to measure the PFC sources and the deuterium recycling with spectral, spatial and temporal resolution adapted to the predicted power deposition profiles on the objects observed. Three kinds of PFC are monitored: the ICRH antenna and LHCD launcher W limiters; one of the 6 high field side W limiters; the upper and lower W divertors. Large-aperture in_situ actively cooled optical systems (f-number ˜ 3) were installed for each view and connected to optical fibres. A total of 240 optical fibres can be distributed on various detection systems including a fast response-time, multi-channel, filtered photodetector-based “Filterscope” system, developed by Oak Ridge National Laboratory as well as grating spectrometers optimized for multi-sightline analysis. The paper will first present the configuration of the Visible Spectroscopy system for the first plasma experiments, namely the views and the detection systems commissioned. Then the alignments and radiance calibration procedures including the patch panel feature will be explained. Finally, the first data obtained during plasma ramp up attempts will be presented and discussed.

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