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## 12.10 Assessment of the measurement performance of the ITER Plasma Position Reflectometry low-field in-vessel system using a FDTD Maxwell full-wave code

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We simulate the measurement performance of the ITER Plasma Position Reflectometry low-field side in-vessel system using a synthetic broadband Ordinary Mode Frequency-Modulated Continuous-Wave reflectometer implemented with REFMUL, a 2D Finite-Difference Time-Domain full-wave Maxwell code. These simulations take into account the system's location within the vessel as well as its plasma access constraints. Two plasma cases are considered: a baseline scenario with  $Q=10$  and a low-density He plasma. Due to the lack of data in the Scrape-Off Layer (SOL) region, the SOL profiles are extrapolated from the core plasma data using two different decay lengths. To weight the influences of Bragg backscattering and forward scattering due to turbulence, we use data with both low- and high-wavenumber spectra with linear and non-linear radial distributions of the amplitude.

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