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Advanced validation of local and global gyrokinetic codes: effects of the magnetic equilibrium G MERLO, O SAUTER, S BRUNNER, A BURKEL, J DOMINSKI, E LANTI, L VILLARD, Swiss Plasma Center, CH-1015 Lausanne, Switzerland, Y CAMENEN, CNRS, PIIM UMR, 13397, Marseille, France, F CASSON, CCFE, Abingdon, Oxon, OX 14 3DB, UK, W DORLAND, University of Maryland, College Park, Maryland 120742, USA, E FABLE, T GOERLER, E SONNENDRUCKER, Max-Planck-Institut fr Plasmaphysik, D-85748 Garching, Germany, F JENKO, D TOLD, UCLA, Department of Physics and Astronomy, Los Angeles, CA 90095, USA, A PEETERS, University of Beyreuth, 95440 Beyreuth, Germany — The large availability of computational resources, together with significant improvements in both simulations models and diagnostic capabilities, have more and more allowed the possibility of carrying out a one-to-one comparison between gyrokinetic simulations and microturbulence measurements. This, however, demands for more sophisticated and comprehensive validation and verification efforts of existing gyrokinetic codes. As one further step in this direction, we have developed a series of benchmarks focusing our attention on the effect of realistic magnetic geometry provided by ideal MHD equilibrium solvers, which is an essential requirement in order to model specific experimental conditions. A first series of tests have been successfully carried out by the GENE, GS2 and GKW codes [G. Merlo *et al.* PoP **23** 2016]. Details and critical points of this exercise will be discussed. The extension of these tests to global gyrokinetic codes, an ongoing effort currently involving the GENE and ORB5 codes, will be discussed as well.

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