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Calibration of the Electron Cyclotron Diagnostic for ITER[1] P.E. PHILLIPS, W.L. ROWAN, M.E. AUSTIN, K.W. GENTLE, H. HUANG, IFS, The University of Texas at Austin, J.H. BENO, A. OUROUA, CEM, The University of Texas at Austin, T. ANG, IPP, Chinese Academy of Sciences, Z.J. YANG, Huazhong University of Science and Technology — Electron temperature measurements will be critical to the non-active and deuterium phase of ITER operation and will take on added importance during the alpha heating phase. The ECE diagnostic for these measurements has front end components that must operate reliably during long pulse operation with high neutron and gamma fluxes in spite of limited opportunities for maintenance. Hence, an in-situ emission source is required to calibrate changes in the front end transmission. The calibration unit is a black body emitter (emissivity > 0.75, 100 GHz $<$ f $<$ 1000 GHz) that operates in vacuum at high temperature (700° C) without adversely affecting the vacuum or nearby diagnostics. It was developed at UT-Austin. Long-term field testing at EAST and J-TEXT is underway using variations of the ITER design tailored for the machines. Operation in the field at full temperature verified the basic design and suggested improvements in the heater design.

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