Abstract Submitted for the DPP06 Meeting of The American Physical Society

Effect of Various EFIT NSTX Equilibria on EBW Simulations¹ JAKUB URBAN, JOSEF PREINHAELTER, Institute of Plasma Physics, Czech Acad., STEVEN SABBAGH, PPPL, PAVOL PAVLO, Institute of Plasma Physics, Czech Acad, LINDA VAHALA, Old Dominon University, GEORGE VAHALA, William & Mary — In overdense NSTX plasmas the standard O and X mode radiation emitted from the first several electron cyclotron (EC) harmonics cannot be observed. An explanation for any such measured EC emission is the mode conversion of Electron Bernstein Waves (EBW) near the upper hybrid resonance region near the plasma edge. EBW is an electrostatic wave that is not subject to a density limit and is strongly emitted/absorbed near the EC harmonics. Thus EBWE yields information on the local plasma temperature near the EC harmonics. However EBW emission is strongly coupled to the equilibrium fields in NSTX as reconstructed from EFIT. We examine some models of EFIT ranging from the basic model that uses only the external magnetic measurements with simple models for plasma current and pressure, to those models that include effects of edge currents, MSE measurements and their effect on EBW simulations. The frequency dependence of EBWE provides optimization parameters for proposed EBW heating and current drive.

¹Work supported by DoE, Euratom and ASCR #AV0Z-20430508.

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Date submitted: 23 Jul 2006

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