

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**Microwave Cavities for Pellet Mass Detection on JET**<sup>1</sup> S.K. COMBS, J.B.O. CAUGHMAN, L.R. BAYLOR, D.A. RASMUSSEN, ORNL, A. GERAUD, CEA Cadarache, D. HOMFRAY, UKAEA Fusion Association — Resonant microwave cavities have been built for measuring the mass of pellets that will be created by the new high frequency pellet injector (HFPI) on JET. Two smaller cavities (TE010 mode) have been made for measuring 1 mm size pellets (for ELM mitigation), and two larger cavities (TM010 mode) have been made for measuring 4 mm size pellets (for fueling). Two of the cavities, one each for measuring both size pellets, will be placed near the injector, while the other two will be placed in curved guide tubes located closer to the JET vacuum vessel. Frozen deuterium pellets have been shot through all four cavities at ORNL, with signal levels ranging from 0.7 to 5.0 volts. Pellet mass is determined by measuring the frequency shift caused by the pellet traversing the cavity. The cavities have been calibrated against each other and as a function of their frequency response. Details of the design and testing results will be presented.

<sup>1</sup>Oak Ridge National Laboratory is managed by UT-Battelle, LLC, for the U.S. Dept. of Energy under contract DE-AC05-00OR22725.

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Date submitted: 07 Sep 2007

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