

Abstract Submitted  
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**High Power Operation of the Upgraded NSTX HHFW Antenna Array**<sup>1</sup> P.M. RYAN, ORNL, J.C. HOSEA, B.P. LEBLANC, L. ROQUEMORE, G. TAYLOR, J.R. WILSON, PPPL, AND THE NSTX TEAM — The single-feed, end-grounded straps of the NSTX 12-strap HHFW antenna array have been replaced with double-feed, center-grounded straps while keeping the remaining antenna geometry unchanged. The peak voltages and electric fields in the vicinity of the Faraday shield have been halved for the same strap currents, permitting a direct examination of the roles that strap voltages and currents play in determining antenna power limits in the presence of plasmas. Plasma operation cleaned enough Li deposits, accumulated during prior wall conditioning, from the antenna surfaces to reach coupled powers in excess of 4 MW in L-mode plasmas in 2009. The center-grounded straps were less susceptible to arcing during ELMing H-mode plasmas than the end-grounded straps had been. A fast framing, visible light camera monitors the full antenna array; an arc can usually be associated with expulsion of Li from the FS/antenna frame surfaces in its immediate vicinity. The voltage holding and power levels obtained during the 2010 campaign will be reported and the limiting mechanisms will be discussed.

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