

Abstract Submitted
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Component tests for the ITER Ion Cyclotron Transmission Line and Matching System - Status and Plans¹ R.H. GOULDING, M.P. MCCARTHY, C.E. DEIBELE, D.A. RASMUSSEN, D.W. SWAIN, G.C. BARBER, I.H. CAMPBELL, S.L. GRAY, R.L. MOON, P.V. PESAVENTO, R.M. SANABRIA, Oak Ridge National Laboratory, E. FREDD, N. GREENOUGH, C. KUNG, Princeton Plasma Physics Laboratory — New $Z_0 = 50\Omega$ gas-cooled component designs for the ITER Ion Cyclotron Heating and Current Drive System have been successfully tested at high RF power levels. They include two types featuring spoke-ring assembly (SRA) inner conductor supports: 20° elbows, and variable length assembly bellows, both achieving RF voltages > 35 kV peak, and currents ~ 760 A peak during quasi-steady state operation. The SRA utilizes mechanically preloaded fused quartz spokes, increasing lateral load handling capability. Components with SRA supports have been seismically tested, with no variation in low power electrical performance detected after testing. A 3 MW four-port switch has also been successfully tested at high RF power, and tests of a 6 MW hybrid power splitter are planned in the near future. Latest results will be presented. Plans for arc localization tests in a 60 m SRA transmission line run, and RF tests of $Z_0 = 50\Omega$ and $Z_0 = 20\Omega$ matching components with water-cooled inner conductors will also be discussed.

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