

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

ICRH Component Prototypes for the Ignitor Experiment¹ M. SASSI, S. MANTOVANI, P. FROSI, A. CARDINALI, ENEA, A. BIANCHI, ANSALDO Energia, Italy — The ICRH system for the Ignitor experiment is designed with a modular configuration to launch the power into the plasma through 4-strap antennas located in four of the 12 horizontal ports. Each module consists of 4 high power generators, operating in the frequency range 80-120 MHz, whose power is split over two ports (8 straps). A 30 Ω vacuum transmission line (VTL) transfers 0.4 MW of power per strap for a total power of 1.6 MW (at 115 MHz) per port in order to keep the maximum electric field below 5 kV/cm in the vacuum region of the straps and transmission line. The RF configuration of the modules allows a full phase controls (toroidal and poloidal) of the straps through a PLL phase control. A detailed design of the ICRH antenna has been carried out, including the Faraday shield, the current straps, the vacuum transmission lines and the vacuum feed-through, and the antenna design has been integrated with the plasma chamber. An innovative plug-in system has been designed that should allow a simple installation of the antenna by remote handling. An improved port will be welded to the existing prototype of the D-shaped sector of the plasma chamber. A set of four straps will then be installed to test their coupling with the VTL coaxial cable. This facility will be used for the testing of welding procedures, vacuum tightness, plug-in system, and high voltage components.

¹Sponsored in part by ENEA of Italy and by the U.S. D.O.E.

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Date submitted: 16 Jul 2009

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