

Abstract Submitted  
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**The ICRH System for the Ignitor Experiment\*** M. SASSI, Italy, A. COLETTI, ENEA, Italy, R. MAGGIORA, Politecnico di Torino, B. COPPI, MIT — The ICRH system is an integral part of the Ignitor experiment as it provides the flexibility to reach ignition regimes following different paths in parameter space and, in particular, by shortening the time needed for this. Another important use of the ICRH is to maintain the plasma in a slightly sub-ignited state, avoiding the excitation of the thermonuclear instability, under quasi-stationary conditions, for the entire duration of the plasma current flat-top. The ICRH system is structured with a modular configuration and launches the power into the plasma through RF strap-antennas based on 4 straps, grouped in two poloidal pairs, per port. The system is designed to operate in the frequency band 80-120 MHz delivering a total power up to 12 MW at the lower frequencies. Each module consists of 4 high power generators whose power is split over two ports (8 straps) in order to keep the maximum electric field (especially in the vacuum region of the straps and transmission line) below 5kV/cm. A  $30\Omega$  vacuum transmission line, including the feedthrough, transfers the power of 0.4 MW to each strap with a total power of 1.6 MW per port. The RF configuration of the modules allows a full phase controls (toroidal and poloidal) of the straps through a PLL phase control. Two modules, distributed over 4 ports, can produce about 6 MW at 120 MHz in order to attain ignition with a limited RF pulse during the plasma heating phase.

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