Abstract Submitted
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The ICRH System for The Ignitor Experiment[1] M. SASSI, A. COLETTI, ENEA, Italy, R. MAGGIORA, Politecnico di Torino, Italy, B. COPPI, MIT — The ICRH system (80-120 MHz) is an important component of the Ignitor experiment as it provides the flexibility to reach ignition or nearly ignited regimes following different paths in parameter space and to shorten the time needed for this. The system is designed with a modular configuration and launches the power into the plasma through RF strap-antennas based on 4 straps per port. Each module consists of 4 high power generators whose power is split over two ports (8 straps). A 30 Ω vacuum transmission line transfers 0.4 MW of power per strap for a total power of 1.6 MW per port in order to keep the maximum electric field below 5 kV/cm in the vacuum region of the straps and trasmission line. The RF configuration of the modules allows a full phase controls (toroidal and poloidal) of the straps though a PLL phase control. Two modules, involving 4 ports, produce 6 MW at 115 MHz for the envisioned RF "accelerated ignition" scenario. 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. Its integration of the antenna with the plasma chamber is under way. The mechanical assembly of the relevant components is fully detailed and ready for a prototype manufacturing.

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