

**ITER-like ICRH antenna: technical evolutions and results on plasma experiments**

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In the frame of the ICRH development led at CEA Cadarache, a project of a prototype antenna based on the electrical layout foreseen for the ITER IC launcher was initiated. First experiments have been performed on Tore Supra in Tore Supra. Pulses of 500 kW lasting up to 6s have been achieved. These experiments have shown the importance of the coupling effect between straps, and thus the need for an active control of the current phasing between them. Nevertheless, the load tolerant properties of such a circuit have been observed. This experimental campaign has been terminated by the failure of the matching components due to undetected arcs. The prototype antenna is now improved accordingly to the fruitful lessons harvested. The RF circuit was improved. Corona rings were added on the capacitor and localized edges were rounded to improve the voltage standoff capability in the low impedance parts of the structure. In order to reduce the toroidal coupling between adjacent straps, a thick poloidal septum was added to the Faraday screen, easing the tuning and the operation of the launcher. The main improvement was the development and the integration of current probes connected to the short-circuited antenna straps.

This paper reports the recent results obtained in 2007 with this enhanced prototype antenna.