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On the JET ITER-Like ICRF antenna and implications for the ICRF system for ITER FREDERIC DURODIE, Laboratory for Plasma Physics, Royal Military Academy, Association Euratom - Belgian State, BE, MARK NIGHTINGALE, Euratom/UKAEA Fusion Association, UK, JET-EFDA COLLABORATION — A new "ITER-Like" Ion Cyclotron Resonance Frequency (ICRF) antenna was installed on the JET tokamak in 2007 and extensively operated on plasma since May 2008 for a wide range of conditions (frequencies: 33, 42 and 47 MHz, L- and ELMy H-mode plasmas, antenna strap - plasma separatrix distances from 9 to 17 cm). Aspects relating to the potential performance and design of the ITER system, will be discussed: (i) the wave coupling performance and validation of the TOPICA modelling code used to predict the coupled power in ITER; (ii) the operation at high coupled power density (up to 6.2 MW/m^2 in L-mode, 4.1 MW/m^2 in H-mode) and high RF voltage on the antenna structure (up to 42 kV); (iii) the coupling of ICRF power during fast variations (ms) in coupling occurring during ELMs and (iv) antenna control in the presence of high mutual coupling between antenna straps.

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