

Parasitic signals in the receiving band of the Sub-Harmonic Arc Detection system on JET ICRF Antennas.

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Arc detection on ICRF systems are a critical point for future ITER designs. A Sub-Harmonic Arc Detection (SHAD) system was tested on the transmission lines feeding the JET ICRF ITER like Antenna (ILA), and also in the conventional A2 antenna system. The capability of the system to detect arcs was already reported in [1]. Along with the commissioning of SHAD, extensive measurements of the RF signal at the input of the system were carried-out using a fast sampling (125 MSample/s) oscilloscope. This contribution will describe occurrences of parasitic signals in the SHAD detection band (5-20MHz). Amongst these, we have identified emission from grid breakdown events in the Neutral Beam injectors, and Minority Ion Cyclotron Emission from the plasma. Spurious signals at ~7 MHz are also often observed when operating in ELMy plasmas. Such parasitic signals could complicate the design and operation of SHAD in ICRF systems for fusion devices. [1] P. Jacquet *et al.*, AIP Conf Proc. 1187, p 241 (2009).

* See the Appendix of F. Romanelli *et al.*, Proceedings of the 23rd IAEA Fusion Energy Conference 2010, Daejeon, Korea.