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(54) **SYSTEM AND METHOD FOR REMOTE SENSING A PLASMA**

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(57) **ABSTRACT**

The invention provides a method and system to remotely monitor a plasma (**3**) comprising a magnetic field antenna (**2**) positioned in the near electromagnetic field of a coupled plasma source wherein the magnetic field antenna is a magnetic loop antenna placed in the near electromagnetic field and measure near field signals emitted from the plasma source. A radio system (**1**) is utilised to analyse the low power signal levels across a wide frequency band. Plasma paramaters such as series, or geometric, resonance plasma and electron-neutral collision frequencies are evaluated via a fitting of resonant features present on higher harmonics of the driving frequency to identify arcing, pump or matching failure events, common in fabrication plasma systems.