

Abstract Submitted
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Study of a 2.45 GHz microwave micro-plasma in air J. GREGORIO, CFP IST 1049-0011 Lisboa / LPGP UPS 91405 Orsay France, P. SYNEK, DPE Masaryk Univ. 611 37 Brno Czech Rep. / LPGP UPS 91405 Orsay France, L.L. ALVES, CFP IST 1049-0011 Lisboa Portugal, C. BOISSE-LAPORTE, P. LEP-RINCE, O. LEROY, L. TEULÉ-GAY, LPGP UPS/CNRS 91405 Orsay France — This paper studies a 2.45 GHz microwave micro-plasma source, working in air at atmospheric pressure. The discharge, similar to the one developed by Kono *et al* [1], is sustained within a slit (50-200 μm wide and 1.4cm width) delimited by two metallic blades placed at one end of a microstrip line. At the other end, a movable short circuit works as an impedance matching unit. The plasma source is placed inside a microwave absorbent box. The power coupling is analyzed theoretically by using the commercial software CST Microwave Studio®, and experimentally by taking the ratio of the reflected to incident power, with and without plasma and for different slit sizes. A spatially resolved optical emission spectroscopy study was also realized, using the SPECAIR® software [2] to deduce the gas temperature T_g along the plasma width. In general, T_g is found between 650 and 1650 K, for 60-140W input power and 50-200 μm slit size.

[1] A. Kono, T. Sugiyama, T. Goto, H. Furuhashi, Y. Uchida, *Jpn. J. Appl. Phys.* Vol. 40 (2001) pp. L238-L241

[2] <http://www.specair-radiation.net/>

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