

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 December 2006 (21.12.2006)

PCT

(10) International Publication Number
WO 2006/135515 A1

(51) International Patent Classification:
H01J 37/32 (2006.01) **G01R 23/00** (2006.01)
G01R 21/133 (2006.01)

(21) International Application Number:
PCT/US2006/018087

(22) International Filing Date: 10 May 2006 (10.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/689,769 10 June 2005 (10.06.2005) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

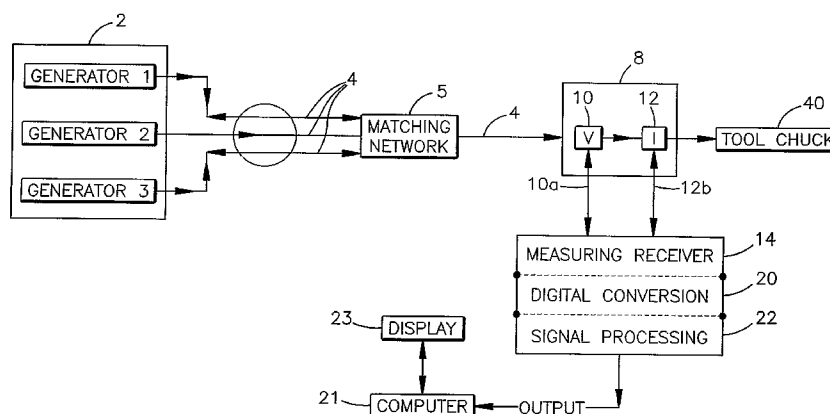
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND METHOD FOR ANALYZING POWER FLOW IN SEMICONDUCTOR PLASMA GENERATION SYSTEMS



(57) Abstract: A system and method for measuring and analyzing power flow parameters in RF-based excitation systems for semiconductor plasma generators. A measuring probe (8) is connected to an RF transmission line for receiving and measuring voltage (10) and current signals (12) from the transmission line (4). A high-speed sampling process converts the measured RF voltage and current signals into digital signals. The digital signals are then processed so as to reveal fundamental and harmonic amplitude and phase information corresponding to the original RF signals. Multiple measuring probes may be inserted in the power transmission path to measure two-port parameters, and the networked probes may be interrogated to determine input impedance, output impedance, insertion loss, internal dissipation, power flow efficiency, scattering, and the effect of plasma non-linearity on the RF signal.

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