

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 January 2007 (11.01.2007)

PCT

(10) International Publication Number
WO 2007/005211 A3

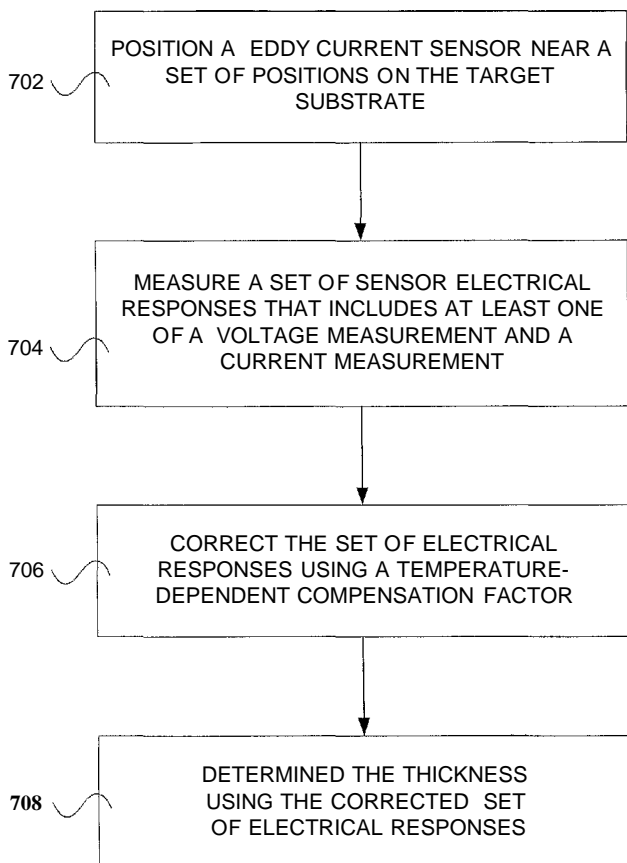
- (51) **International Patent Classification:**
GOIR 35/00 (2006.01)
- (21) **International Application Number:**
PCT/US2006/023033
- (22) **International Filing Date:** 13 June 2006 (13.06.2006)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
11/172,017 29 June 2005 (29.06.2005) 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, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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

[Continued on next page]

(54) **Title:** METHODS AND APPARATUS FOR OPTIMIZING AN ELECTRICAL RESPONSE TO A CONDUCTIVE LAYER ON A SUBSTRATE



(57) **Abstract:** A method of determining a first thickness of a first conductive film formed of a first conductive material on a target substrate is disclosed. The method includes positioning a first eddy current sensor near a set of positions on the target substrate. The method also includes measuring, using the first eddy current sensor, a first set of electrical responses that includes at least one of a first voltage measurement and a first current measurement. The method further includes correcting the set of first electrical responses using a temperature-dependent compensation factor, thereby obtaining a corrected first set of electrical responses, the temperature-dependent compensation factor being obtained from a calibration substrate different from the target substrate, the calibration substrate having a second conductive film formed of a second conductive material that is substantially similar to the first conductive material of the target substrate; and determining the first thickness using the corrected first set of electrical responses.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.

(88) Date of publication of the international search report:

3 May 2007

INTERNATIONAL SEARCH REPORT

International application No

PCT/US06/23033

A CLASSIFICATION OF SUBJECT MATTER
 IPC **GOIR 35/00**(2006 01)

USPC 324/202

According to International Patent Classification (IPC) or to both national classification and IPC

B FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U S 324/202, 225, 228-243

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 6,479,990 B2 (MEDNIKOV et al) 12 November 2002 (12 11 2002), entire document	14 and 21
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A		1-13, 15-20 and 22-29

D Further documents are listed in the continuation of Box C See patent family annex

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Date of the actual completion of the international search
 28 February 2007 (28 02 2007)

Date of filing of the international search report
 07 MAR 2007

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/23033

Continuation of B. FIELDS SEARCHED Item 3:

BAST: US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBMJTDB

Search Terms: thickness, layer, film, coating, calibration, substrate, eddy, current, temperature, compensat\$4, known, conductive