

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
18 May 2006 (18.05.2006)

PCT

(10) International Publication Number  
**WO 2006/052202 A1**

(51) International Patent Classification:

*G01N 33/02* (2006.01) *G01N 29/00* (2006.01)  
*G01N 22/00* (2006.01)

(21) International Application Number:

PCT/SE2005/001694

(22) International Filing Date:

10 November 2005 (10.11.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0402788-4 12 November 2004 (12.11.2004) SE

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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

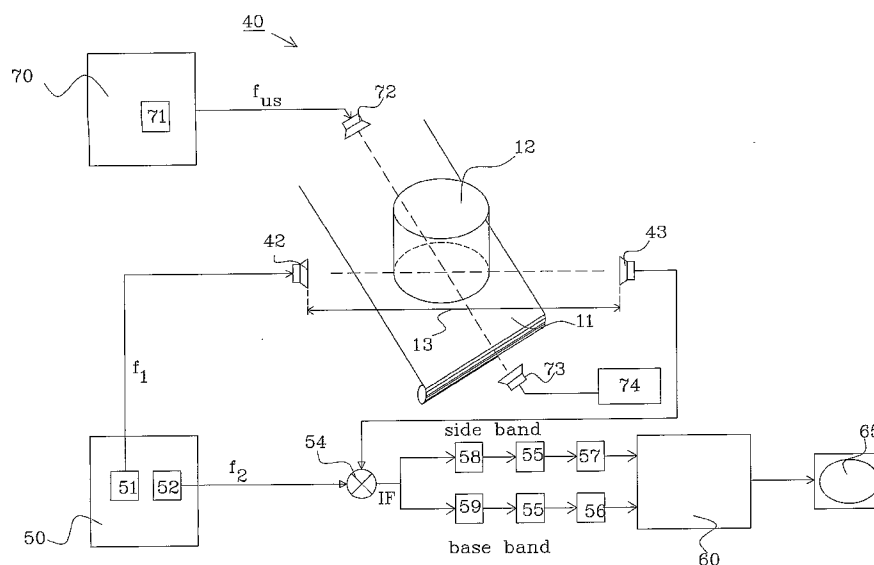
kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, 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: AN APPARATUS AND METHOD FOR DETERMINING PHYSICAL PARAMETERS IN AN OBJECT USING ACOUSTO-ELECTRIC INTERACTION



(57) Abstract: The present invention relates to an apparatus for determining a dielectric function in an object. The apparatus comprises one transmit antenna (42) for transmitting microwave radiation through said object, and one receive antenna (43) for receiving the transmitted microwave radiation, one ultrasound transmitter for emitting ultrasound radiation through said object to generate a density variation in the object, means to analyse the microwave radiation transmitted through the density variation to determine the acousto-electric interaction  $\delta$  in the object, and means to calculate the dielectric function in the object from the acousto-electric interaction. The invention also relates to a method for determining the dielectric function in an object.