

# (12) International Application Status Report

**Received at International Bureau:** 14 September 2017 (14.09.2017)

**Information valid as of:** 20 August 2019 (20.08.2019)

**Report generated on:** 13 October 2019 (13.10.2019)

**(10) Publication number:**

WO2019/048727

**(43) Publication date:**

14 March 2019 (14.03.2019)

**(26) Publication language:**

English (EN)

**(21) Application Number:**

PCT/FI2017/050628

**(22) Filing Date:**

06 September 2017 (06.09.2017)

**(25) Filing language:**

English (EN)

**(51) International Patent Classification:**

*G01N 27/07* (2006.01); *G01N 27/22* (2006.01); *G01N 33/28* (2006.01); *G01R 27/26* (2006.01); *G01R 27/22* (2006.01); *G01N 33/02* (2006.01); *G01N 33/34* (2006.01)

**(71) Applicant(s):**

ROCSOLE LTD [FI/FI]; Kauppakatu 20 70100 Kuopio (FI) *(for all designated states)*

**(72) Inventor(s):**

LAAKKONEN, Pasi; Liito-oravankatu 7 70840 Kuopio (FI)  
LEHIKOINEN, Anssi; Katajalehdonkatu 1 70820 Kuopio (FI)  
MONONEN, Mika; Kanavanranta 10 A 9 70840 Kuopio (FI)  
VOUTILAINEN, Arto; Rantaraitti 6 B 4 70820 Kuopio (FI)

**(74) Agent(s):**

PAPULA OY; P.O. Box 981 00101 Helsinki (FI)

**(54) Title (EN):** ELECTRICAL TOMOGRAPHY FOR VERTICAL PROFILING

**(54) Title (FR):** TOMOGRAPHIE ÉLECTRIQUE DE PROFILAGE VERTICAL

**(57) Abstract:**

**(EN):** An apparatus (600) for determining, by electrical tomography, vertical profile of an electrical property of interest of material(s) in a target volume (618) comprises a measurement probe (610) to be positioned at a plurality of different measurement levels (650) in a target volume and comprising a plurality of measurement elements (111) each having an interface surface (112). Each interface surface has a size, shape, and rotational position. A measurement path (114) is formed between two interface surfaces as dependent on the sizes, shapes, and rotational positions of the two interface surfaces, and the distance between the two interface surfaces. The locations, rotational positions, shapes, and sizes of the interface surfaces are selected to provide at least two different measurement paths differing from each other in one or more of said sizes of, shapes of, rotational positions of, and distances between the associated interface surfaces.

**(FR):** L'invention concerne un appareil (600) permettant de déterminer, par tomographie électrique, un profil vertical d'une propriété électrique d'intérêt d'un ou plusieurs matériaux dans un volume cible (618) comprenant une sonde de mesure (610) à positionner à une pluralité de niveaux de mesure différents (650) dans un volume cible et comprenant une pluralité d'éléments de mesure (111) possédant chacun une surface d'interface (112). Chaque surface d'interface présente une dimension, une forme et une position de rotation. Un trajet de mesure (114) est formé entre deux surfaces d'interface en fonction des dimensions, des formes et des positions de rotation des deux surfaces d'interface et de la distance entre les deux surfaces d'interface. Les emplacements, les positions de rotation, les formes et les dimensions des surfaces d'interface sont sélectionnés afin de fournir au moins deux trajets de mesure différents différant l'un de l'autre par rapport auxdites tailles, formes, positions de rotation et/ou distances entre les surfaces d'interface associées.

**International search report:**

Received at International Bureau: 16 February 2018 (16.02.2018) [FI]

**International Report on Patentability (IPRP) Chapter II of the PCT:**

Chapter II demand received: 08 July 2019 (08.07.2019)

**(81) Designated States:**

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM

**Declarations:**

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America