

## SEARCH RECORD

**Title of invention:** ELECTRICAL TOMOGRAPHY FOR VERTICAL PROFILING

**Application No:** PCT/FI2017/050628

**Priority application No:**

- No priorities -

**Minimum documentation searched (classification system followed by classification):**

**IPC:** G01N, G01R, G01V

**CPC:** G01N, G01R, G01V

**others:**

**Documentation searched other than minimum (FI,SE,NO,DK):**

IPC: G01N27/07, G01N27/22, G01N33/28, G01R27/22

**Electronic data bases consulted during the the novelty search:**

EPODOC, EPO-Internal full-text databases, Full-text translation databases from Asian languages, WPIAP, PRH-Internal, XP3GPP, XPAIP, XPESP, XPETSI, XPI3E, XPIEE, XPIETF, XPIOP, XPIPCOM, XPJPEG, XPMISC, XPOAC, XPRD, XPTK, COMPDX, INSPEC, TDB, NPL

**Language(s) in which the search was carried out:**

English

**Examiners consulted:**

Verifying examiner Tomi Koskinen

| Date       | Examiner       |
|------------|----------------|
| 07.02.2018 | Ville Möttönen |

**The listing of the search history:**

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? ..FI $ABS2
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** SS 5: Results 34
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** SS 3: Results 223
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\*\* SS 23: Results 1  
? \*3 AND FI/PN {Filtered FI documents}  
\*\* SS 24: Results 0  
? XFull Fulltext Non Patent Literature Search:  
Mode Direct (Non Patent Literature Search)  
English query: 'and (or LAAKKONEN, lehkoinen, mononen, voutilainen, ROCSOLE), (or tank+, vessel+, container+), (or probe, electrode+);'  
English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''  
English limit: None  
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English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''  
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English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''  
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Mode Direct (Non Patent Literature Search)  
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English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''  
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Mode Direct (Non Patent Literature Search)

English query: 'and (((or (electrical w tomograph+), (electrical w capacitance w tomograph+), ECT, (electrical w impedance w tomograph+), EIT, (electrical w resistance w tomograph+), ERT) p (or tank+, vessel+, container+)) p probe) p electrode+), (or height, (measurement w level)), (or admittivity, permittivity, conductivity, impedance, capacitance, tomograph+), (or oil, moisture, water, liquid), interface+, surface+;'

English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''

English limit: None

English results: 151

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Mode Direct (Non Patent Literature Search)

English query: 'and (((or (electrical w tomograph+), (electrical w capacitance w tomograph+), ECT, (electrical w impedance w tomograph+), EIT, (electrical w resistance w tomograph+), ERT) p (or tank+, vessel+, container+)) p probe) p electrode+), (or height, (measurement w level)), (or admittivity, permittivity, conductivity, impedance, capacitance, tomograph+), (or oil, moisture, water, liquid), interface+, surface+, vertical+, (or rope+, cable+, anchor+);'

English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''

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Mode Direct (Non Patent Literature Search)

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English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''

English limit: None

English results: 1

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Mode Direct (Non Patent Literature Search)

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English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''

English limit: None

English results: 2

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English cluster: 'XP3GPP XPAIP XPESP XPETSI XPI3E XPIEE XPIETF XPIOP XPIPCOM XPJPEG XPMISC XPOAC XPRD XPTK' 'COMPDX INSPEC TDB NPL' ''

English limit: None

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English cluster: 'TCM TXPCNEA TXPCNEB TXPCNEC TXPCNEU TXPCNEY TXPEA TXPEB TXPEC TXPEE TXPEF TXPEH TXPEI TXPEP TXPEPEA TXPEPEB TXPES TXPEU TXPEY TXPJPEA TXPJPEB TXPJPOEA TXPJPOEB TXPKREA TXPKREB TXPKREU TXPKREY TXPMTCEA TXPMTCEU TXPMTTEA TXPMTTEB TXPMTTEC TXPMTTEE TXPMTET TXPMTTEU TXPMTTEW TXPMTTEY TXPMTJEA TXPMTJEB TXPMTJEU TXPMTJEY TXPMTKEA TXPMTKEB TXPMTKEU TXPMTKEY TXPUSE0A TXPUSE1A TXPUSEA TXPUSEB TXPW0EA TXPW0TEA WPIAP EPODOC'

English limit: None

English results: 0

German query: ''

German cluster: ''

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French query: ''

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French results: 0

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English query: 'and (((or (electrical w tomograph+), (electrical w capacitance w tomograph+), ECT, (electrical w impedance w tomograph+), EIT, (electrical w resistance w tomograph+), ERT) p (or tank+, vessel+, container+)) p (probe 4w ((or within, inside, closed) 4w (or tank, volume, container, vessel)))) p electrode+), (or height, (measurement w level)), (or admittivity, permittivity, conductivity, impedance, capacitance, tomograph+);'

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English query: 'and (((or (electrical w tomograph+), (electrical w capacitance w

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English cluster: 'TCM TXPCNEA TXPCNEB TXPCNEC TXPCNEU TXPCNEY TXPEA TXPEB TXPEC TXPEE TXPEF TXPEH TXPEI TXPEP TXPEPEA TXPEPEB TXPES TXPEU TXPEY TXPJPEA TXPJPEB TXPJPOEA TXPJPOEB TXPKREA TXPKREB TXPKREU TXPKREY TXPMTCEA TXPMTCEU TXPMTEA TXPMTEB TXPMTTEC TXPMTTEE TXPMTET TXPMTTEU TXPMTTEW TXPMTTEY TXPMTJEA TXPMTJEB TXPMTJEU TXPMTJEY TXPMTKEA TXPMTKEB TXPMTKEU TXPMTKEY TXPUSE0A TXPUSE1A TXPUSEA TXPUSEB TXPW0EA TXPW0TEA WPIAP EPODOC'

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(vertical+ 3d profile+);'  
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? XFull Create Set Patent Search:  
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? XFull Fulltext Patent Search:



8663 documents selected in the XFull set (Patent Search)  
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ECT, (electric+ w impedance w tomograph+), EIT, (electric+ w resist+ w tomograph+), ERT),  
((or mov+, shift+, transfer+, lift+) 3d (or probe, electrode));'  
English cluster: 'TCM TXPCNEA TXPCNEB TXPCNEC TXPCNEU TXPCNEY TXPEA TXPEB TXPEC TXPEE  
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G01N27/60/LOW  
G01N33/26/LOW  
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180070 selected documents in the XFull set.  
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ECT, (electric+ w impedance w tomograph+), EIT, (electric+ w resist+ w tomograph+), ERT),  
(((or probe+, element+, electrode+) 5d (or contaminat+, (foreign w matter), impurity,  
pollutant, dirt)) 5d (or interface, surface)), (or tank+, vessel+, container+, reservoir+,  
cistern+);'  
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Mode Direct (Patent Search)  
English query: 'and (or (electric+ 2w tomograph+), (electric+ w capacit+ w tomograph+),

ECT, (electric+ w impedance w tomograph+), EIT, (electric+ w resist+ w tomograph+), ERT),  
(((or probe+, element+, electrode+) 5d (or contaminat+, (foreign w matter), impurity,  
pollutant, dirt)) 5d (or interface, surface)), (or tank+, vessel+, container+, reservoir+,  
cistern+), (or vertical+, profile+, height+, level+);'

English cluster: 'TCM TXPCNEA TXPCNEB TXPCNEC TXPCNEU TXPCNEY TXPEA TXPEB TXPEC TXPEE  
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English limit: None

English results: 22

German query: ''

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G01N33/26/LOW

G01R27/00/LOW

G01V3/18/LOW

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G01N33/26/LOW

G01R27/00/LOW

G01V3/18/LOW

180070 selected documents in the XFull set.

? XFull Fulltext Patent Search:

180070 documents selected in the XFull set (Patent Search)

English query: 'and (or electrical+, conduct+, impedance+, admittan+), (((or probe+,  
element+, electrode+) 5d (or contaminat+, (foreign w matter), impurity, pollutant, dirt))  
5d (or interface, surface)) 7d (or effect, impact, influence)), (or tank+, vessel+,  
container+, reservoir+, cistern+), (or vertical+, profile+, height+, level+);'

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NPL SS 3 Results: 4950 \*M1/LNKX {Incl alternative XP}  
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4950 documents selected in the XFull set (Non Patent Literature Search)  
English query: 'and (or electrical+, conduct+, impedance+, admittan+), (((or probe+, element+, electrode+) 5d (or contaminat+, (foreign w matter), impurity, pollutant, dirt)) 5d (or interface, surface)) 7d (or effect, impact, influence)), (or tank+, vessel+, container+, reservoir+, cistern+), (or vertical+, profile+, height+, level+);'  
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effect, impact, influence)), (or tank+, vessel+, container+, reservoir+, cistern+), (or  
vertical+, profile+, height+, level+);'  
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or "WO2011039416"/PN, "WO2014118425"/PN, "WO2014135741"/PN, "WO2016110608"/PN,  
"WO2017203095"/PN

**SEARCH RECORD****Application No: PCT/FI2017/050628**

50 PN Documents found  
16 NPL Documents found  
including 31 restricted family members  
Input for Combi:  
"JP2013195343"/PN  
2 PN Documents found  
0 NPL Documents found  
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252 PN Documents found  
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154 PN Documents found  
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53 PN Documents found  
0 NPL Documents found  
including 5 restricted family members  
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37 PN Documents found  
0 NPL Documents found  
including 3 restricted family members

**Other Information:**