The transmitter and receiver may be operable to transmit using electromagnetic transmission techniques.

[Continued on next page]
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

Published:
— with international search report (Art. 21(3))

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3 July 2014
# INTERNATIONAL SEARCH REPORT

**PCT/GB2012/052902**

## A. CLASSIFICATION OF SUBJECT MATTER

### INV. E21B33/035 E21B47/12

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

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols): E21B

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):

- EPO-Internal
- WPI Data
- TULSA

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>X</td>
<td>US 2006/054329 AI (CHISHOLM CHRISTIAN [US]) 16 March 2006 (2006-03-16) paragraphs [0061] - [0066], [0069], [0070] figures 4,5,7,8,11</td>
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<td>Wo 03/096073 AI (HALLIBURTON ENERGY SERV INC [US]) 20 November 2003 (2003-11-20) the whole document</td>
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<td>DATABASE WPI Week 201010 Thomson Scientific, London, GB; AN 2010-A81494 XP002723694, -&amp; CN 201 377 317 Y (SHAANXI ZHONGYUAN ELECTRONIC TECHNOLOGY CO LTD) 6 January 2010 (2010-01-06) abstract</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

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Date of actual completion of the international search: 28 April 2014

Date of mailing of the international search report: 13/05/2014

Name and mailing address of the ISA/ \[European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016\]

Authorized officer: Schouten, Adri
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<tr>
<td>US 2006054329 A1</td>
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<td>CA 2519328 A1</td>
<td>16-03-2006</td>
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<td>US 2006054329 A1</td>
<td>16-03-2006</td>
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<td>US 2004257241 A1</td>
<td>23-12-2004</td>
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<td>WO 03096073 A1</td>
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