(54) Title: METHOD AND APPARATUS FOR RFID ANTENNAS

(57) Abstract: A radio frequency identification (RFID) system includes a reader and a tag. The RFID reader includes at least one reader antenna, the reader antenna is configured as a lossy loop antenna with a beam coverage area. The RFID tag includes a loop antenna, the tag loop antenna cooperate with the reader antenna to receive and transmit radio frequency signals between the reader antenna and the tag antenna when the tag is located with a near field distance from the reader antenna.
Published:

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report: 20 November 2008
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

G06K 19/07(2006.01)

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)

IPC 8 : G06K

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

Korean Utility Models and applications for Utility Models since 1975; IPC above

Japanese Utility Models and applications for Utility Models since 1975; IPC above

Electronic database consulted during the international search (name of database and, where practical, search terms used)

eKIPASS(KIPO internal) "probe", "substrate", "silicon", "segment", "stopper", "joint"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>KR 10-2006-0015233 A (FUJITSU LIMITED) 16 February 2006 See the whole document.</td>
<td>24 - 33</td>
</tr>
<tr>
<td>A</td>
<td>US 6107921 A (NOEL H. EBERHARDT et al) 22 August 2000 See abstract and figure 1-8.</td>
<td>1 - 23</td>
</tr>
</tbody>
</table>

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

Date of the actual completion of the international search

30 SEPTEMBER 2008 (30.09.2008)

Date of mailing of the international search report

30 SEPTEMBER 2008 (30.09.2008)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seoonsa-ro, Seogu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Date of mailing of the international search report

30 SEPTEMBER 2008 (30.09.2008)

Authorized officer

Park Jang Hwan

Telephone No. 82-42-481-8463

Form PCT/ISA/210 (second sheet) (July 2008)
INTERNATIONAL SEARCH REPORT

Box No. II  Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III  Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

I. Claims 1-23 directed to a RFID system and reader having reader antenna comprising a flexible substrate with a conductive material deposited onto the substrate.

II. Claims 24-33 directed to a RFID tag comprising a loop antenna and chip.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☑ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest  ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (2)) (July 2008)
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EP 1626364 A2</td>
<td>15.02.2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 1626364 A2</td>
<td>15.02.2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 2006-053833 A</td>
<td>23.02.2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TW 267788 B</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2006-032926 A</td>
<td>16.02.2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 2006-203844 A</td>
<td>03.08.2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 6236316 B1</td>
<td>22.05.2001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO 00-41148 A1</td>
<td>13.07.2000</td>
</tr>
</tbody>
</table>