Title: METHOD AND APPARATUS FOR PROVIDING CONTROL SIGNALING

Abstract: An approach is provided for an efficient control signaling associated with an error control scheme. A determination is made whether data has been properly received according to an error control scheme. A first pilot sequence representing an acknowledgement is generated if the data is properly received. A second pilot sequence representing a negative acknowledgement is generated if the data is not properly received. A frame including either the first pilot sequence or the second pilot sequence is output. Multiplexing acknowledgement and CQI bits into common subframe.
Published: 4 December 2008

— 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
A. CLASSIFICATION OF SUBJECT MATTER

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

INV. H04L1/16

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04L

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 practical, search terms used)

EPO-Internal, WPI Data, INSPEC

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>
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<tbody>
<tr>
<td>X</td>
<td>EP 1 564 923 A (SAMSUNG ELECTRONICS CO LTD [KR]) 17 August 2005 (2005-08-17) abstract figures 7-14 paragraphs [0049], [0057], [0059], [0060], [0063], [0069], [0072], [0081] = [0091], [0094]</td>
<td>1-23</td>
</tr>
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</table>

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

* Special categories of cited documents:

'A' document defining the general state of the art which is not considered to be of particular relevance

'E1' earlier document but published on or after the international filing date

'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

'O' document referring to an oral disclosure, use, exhibition or other means

'P' document published prior to the international filing date but later than the priority date claimed

'T1' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

'&' document member of the same patent family

Date of the actual completion of the international search: 16 July 2008

Date of mailing of the international search report: 15/10/2008

Authorized officer: Borges, Pedro

Name and mailing address of the ISA:

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NL - 2280 HV Rijswijk
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**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:

   see additional sheet

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 fees, this Authority did not invite payment of additional fees.__

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.:__

   1-23

**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.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-23

   Representing ACK/NACK using pilot sequences

2. claims: 24-33

   Multiplexing acknowledgment signalling and CQI into common subframe.
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<td>EP 1564923</td>
<td>17-08-2005</td>
<td>CN 1697363 A</td>
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