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- (88) Date of publication of the international search report:
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(54) Title: FRAME STRUCTURES WITH FLEXIBLE PARTITION BOUNDARY FOR WIRELESS NETWORKS

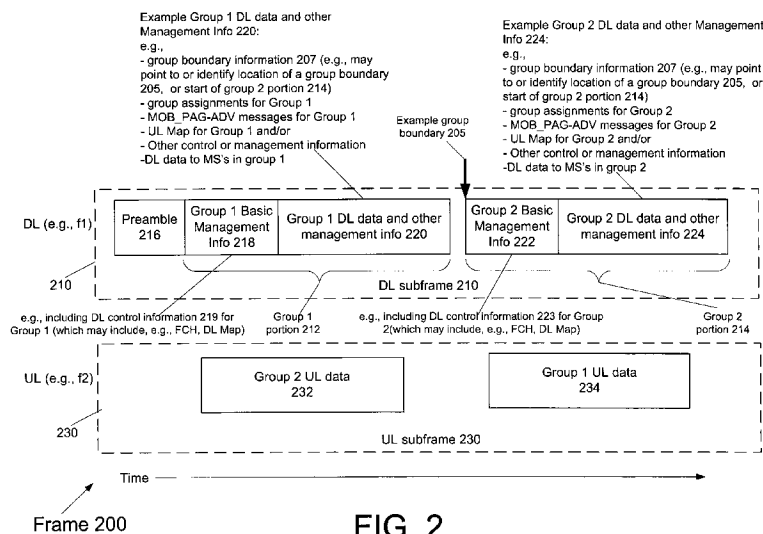


FIG. 2

(57) Abstract: Various example embodiments are disclosed herein. According to an example embodiment, an apparatus may include a wireless interface, and a controller, the apparatus being configured to: transmit a downlink subframe of a frequency division duplex (FDD) frame to one or more mobile stations in a wireless network, each wireless station being assigned to one of a plurality of groups, such as, for example, one of group 1 or group 2, the downlink subframe including at least: a group 1 portion and a group 2 portion, wherein a group boundary between the group 1 portion and the group 2 portion of the downlink subframe is variable, at least one of the group 1 portion and the group 2 portion including a group boundary information identifying a location of the group boundary or a location of the group 2 portion in the downlink subframe.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2009/000316

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04B7/26

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)
H04B

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, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/102948 A1 (STANWOOD KENNETH L [US] ET AL) 1 August 2002 (2002-08-01) paragraph [0077] - paragraph [0080] paragraph [0084] figures 5,6,8	1-25
A	US 5 506 837 A (SOELLNER MICHAEL [DE] ET AL) 9 April 1996 (1996-04-09) column 1, line 34 - line 42 column 6, line 61 - line 67 column 7, line 22 - column 8, line 43 ----- -/--	1,12,14, 15,19,21



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
- *E* 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

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- *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

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INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2009/000316

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	US 2009/092067 A1 (SUDARSHAN PALLAV [US] ET AL) 9 April 2009 (2009-04-09) paragraph [0001] paragraph [0002] paragraph [0014] - paragraph [0018] paragraph [0028] - paragraph [0030] paragraph [0033] - paragraph [0041] -----	1, 12, 14, 15, 19, 21
E	WO 2009/051455 A (LG ELECTRONICS INC [KR]; CHUN JIN YOUNG [KR]; IHM BIN CHUL [KR]; KWAK) 23 April 2009 (2009-04-23) paragraph [0005] paragraph [0041] - paragraph [0045] paragraph [0048] - paragraph [0057] paragraph [0082] - paragraph [0086] -----	1, 12, 14, 15, 19, 21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2009/000316

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.:

1-25

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-25

Methods and devices for defining a downlink frame in an FDD system used by at least two groups of users. Indication of boundary between portion 1 and portion 2.

2. claims: 26-32,38,39

Method for synchronising a mobile station in a wireless network transitioning from idle state to active state.

3. claims: 33-37,40-44

Methods for determining if the allocation of one variable portion of a downlink subframe is known or not and, if it is not known, performing other steps to determine its position.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2009/000316

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002102948 A1	01-08-2002	US 2008144542 A1 US 2008144545 A1 US 2008107049 A1 US 2008102779 A1	19-06-2008 19-06-2008 08-05-2008 01-05-2008
US 5506837 A	09-04-1996	DE 4304095 A1 EP 0611006 A1 JP 3472332 B2 JP 6350519 A	18-08-1994 17-08-1994 02-12-2003 22-12-1994
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