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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report (Art. 21(3))*

[Continued on next page]

(54) **Title**: DATA TRANSMISSION WITH CROSS-SUBFRAME CONTROL IN A WIRELESS NETWORK

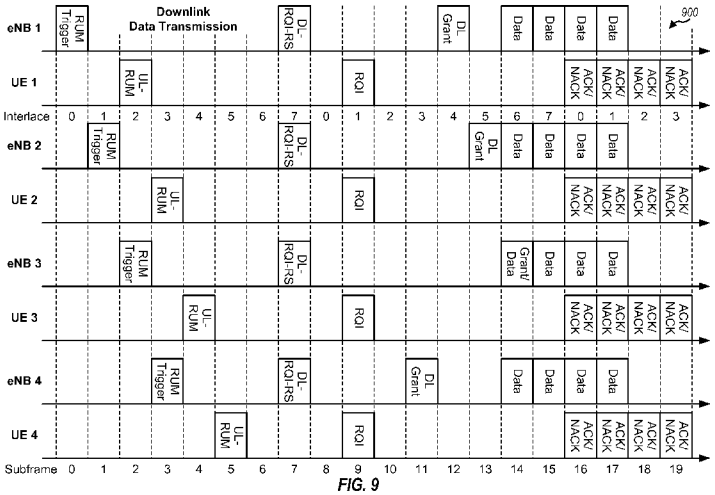


FIG. 9

(57) **Abstract**: Techniques for supporting communication in dominant interference scenarios are described. In an aspect, communication in a dominant interference scenario may be supported with cross-subframe control. Different base stations may be allocated different subframes for sending control information. Each base station may send control messages in the subframes allocated to that base station. Different base stations may have different timelines for sending control messages due to their different allocated subframes. With cross-subframe control, control information (e.g., grants, acknowledgement, etc.) may be sent in a first subframe and may be applicable for data transmission in a second subframe, which may be a variable number of subframes from the first subframe. In another aspect, messages to mitigate interference may be sent on a physical downlink control channel (PDCCH).

WO 2010/141912 A3

— *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))*

(88) Date of publication of the international search report:
14 July 2011

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L5/00
ADD.

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)
H04L H04W

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/127015 A1 (LG ELECTRONICS INC [KR]; CHOI SEUNG DEOG [KR]; KIM KI JUN [KR]; YOON S) 23 October 2008 (2008-10-23) paragraphs [0048] - [0055]; figure 5	1-44
A	US 2008/101211 A1 (RAO ANIL M [US]) 1 May 2008 (2008-05-01) paragraphs [0004], [0031] - [0033]	1-44
A	WO 2008/009027 A2 (QUALCOMM INC [US]; MALLADI DURGA PRASAD [US]) 17 January 2008 (2008-01-17) paragraphs [0008] - [0011]	1-44
A	WO 2007/078171 A2 (LG ELECTRONICS INC [KR]; LEE YOUNG DAE [KR]; CHUN SUNG DUCK [KR]; JUNG) 12 July 2007 (2007-07-12) page 10, line 7 - line 15; claims 1-10	1-44

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[X] Further documents are listed in the continuation of Box C.

[X] 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

"T" 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	Date of mailing of the international search report
10 May 2011	23/05/2011

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

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/037534

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/105575 A1 (SAMPATH ASHWIN [US] ET AL) 10 May 2007 (2007-05-10) paragraphs [0045], [0067]	45-73
X	WO 2009/065075 A1 (QUALCOMM INC [US]; KHANDEKAR AAMOD D [US]; BHUSHAN NAGA [US]) 22 May 2009 (2009-05-22) paragraphs [0007] - [0011], [0041] - [0042], [0051] - [0054], [0061]	45-73

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/037534

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.:

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: 1-44

   Method for wireless communication exchanging data a variable number of subframes after corresponding control data

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2. claims: 45-73

   Method for wireless communication exchanging data on resources having reduced interference

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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