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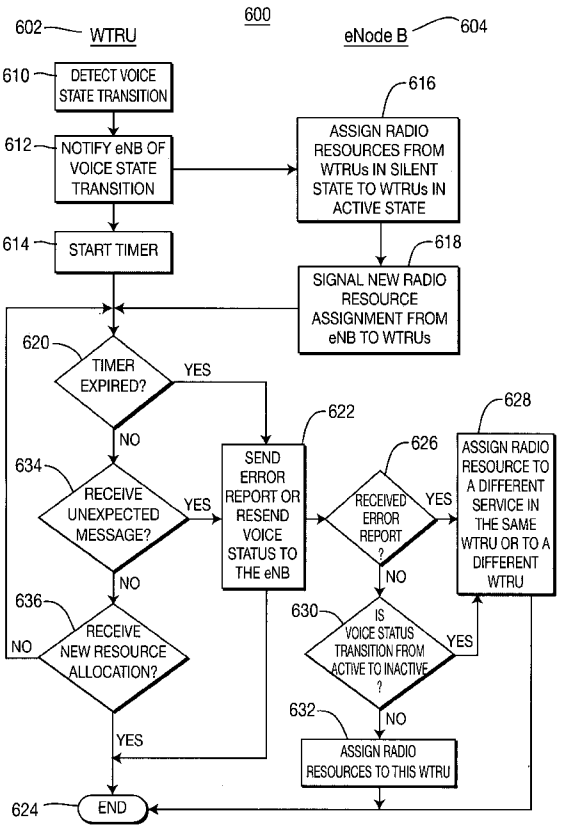
(54) Title: RESOURCE ALLOCATION, SCHEDULING, AND SIGNALING FOR GROUPING REAL TIME SERVICES



(57) Abstract: The present invention is a method and apparatus for resource allocation signaling for grouping user real time services. Uplink signaling for voice activity reporting of each user's transition between an active state and an inactive voice state is sent from a wireless transmit/receive unit to a Node B. Radio resource allocation to users of a wireless communication system varies based on user measurement reporting, a pre-determined pattern such as frequency hopping, or a pseudorandom function. Grouping methods are adjusted to better utilize the voice activity factor, so that statistical multiplexing can be used to more efficiently utilize physical resources.

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. H04Q7/38 H04L12/56

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)
H04Q 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 206 072 A (LUCENT TECHNOLOGIES INC [US] LUCENT TECHNOLOGIES INC [US]; FLARION TEC) 15 May 2002 (2002-05-15) paragraph [0009] paragraph [0018]	1-4
X	EP 1 392 074 A (SAMSUNG ELECTRONICS CO LTD [KR]) 25 February 2004 (2004-02-25) paragraph [0037] - paragraph [0038]	5-7,46

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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
15 April 2008	07/07/2008

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHINA UNICOM ET AL: "Joint Proposal for 3GPP2 Physical Layer for FDD Spectra; C30-20060731-040R4" INTERNET CITATION, [Online] 31 July 2006 (2006-07-31), XP002468555 Retrieved from the Internet: URL:http://www.3gcn.org/3gpp2/TSGC/Working /2006/2006-07-Montreal/TSG-C-20 06-07-31-Montreal/WG3/> [retrieved on 2008-02-11] paragraph 1.3.8	1-7
A	WO 98/04055 A (ERICSSON GE MOBILE INC [US]) 29 January 1998 (1998-01-29) page 10, line 32 - line 37	46-57
A	US 5 745 854 A (SCHORMAN ERIC REED [US]) 28 April 1998 (1998-04-28) column 3, line 37 - line 45	46-57

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/018279

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 allsearchable 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 reportcovers 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.:

1-7, 46-57

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: 1-7, 46-57

assigning resources to a group of WTRUs

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2. claims: 8-45, 58-74

WTRUs are assigned resources taking their voice activity into account

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2007/018279

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1206072 A	15-05-2002	AT 298967 T	15-07-2005
		AU 783584 B2	10-11-2005
		AU 8550301 A	09-05-2002
		BR 0104819 A	02-07-2002
		CA 2359514 A1	03-05-2002
		CN 1352494 A	05-06-2002
		DE 60111706 D1	04-08-2005
		DE 60111706 T2	04-05-2006
		ES 2242712 T3	16-11-2005
		JP 3996374 B2	24-10-2007
		JP 2002204204 A	19-07-2002
		KR 20020034977 A	09-05-2002
		US 6804528 B1	12-10-2004
		US 2007173269 A1	26-07-2007
EP 1392074 A	25-02-2004	AU 2003235065 A1	04-03-2004
		CN 1496138 A	12-05-2004
		JP 3803661 B2	02-08-2006
		JP 2004135293 A	30-04-2004
		KR 20040016334 A	21-02-2004
		US 2004087320 A1	06-05-2004
WO 9804055 A	29-01-1998	AU 3721797 A	10-02-1998
		DE 69720730 D1	15-05-2003
		EP 0914727 A1	12-05-1999
		ID 19005 A	28-05-1998
		JP 2000515698 T	21-11-2000
		US 5896375 A	20-04-1999
US 5745854 A	28-04-1998	DE 69428492 D1	08-11-2001
		DE 69428492 T2	23-05-2002
		EP 0654202 A1	24-05-1995
		WO 9430026 A1	22-12-1994