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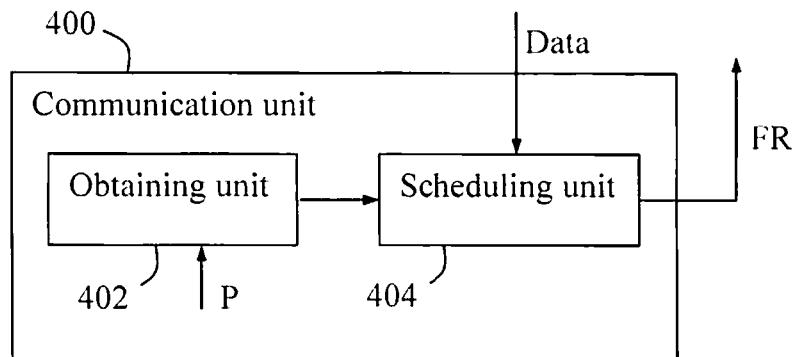
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(54) Title: METHOD AND APPARATUS IN A TELECOMMUNICATION SYSTEM

Fig. 4



(57) **Abstract:** Method and apparatus in a communication unit (400) employing a wireless TDD or half duplex FDD transmission arrangement when communicating with a data sending party, for scheduling feedback reports for data blocks in received RX sub-frames, in TX sub-frames available for transmission. An obtaining unit (402) in the communication unit receives allocation parameters (P) for the connection where the number of required feedback reports is greater than the number of allowed feedback reports. A scheduling unit (404) in the communication unit then schedules feedback reports (FR) in available TX sub-frames according to a predetermined spreading rule also known by the data sending party, dictating that the feedback reports are spread out or distributed evenly over the available TX sub-frames. In this way, the number of feedback reports in a TX sub-frame can be reduced.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet
 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: H04L

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

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ, INSPEC, COMPDX, INTERNET

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 0139433 A2 (MOTOROLA LIMITED), 31 May 2001 (31.05.2001), page 6, line 21 - page 7, line 9, claims 1-4,7-10, abstract --	1-28
A	US 20060048034 A1 (CHO), 2 March 2006 (02.03.2006), claims 1,2,5 --	1-28
A	US 7139251 B1 (VARMA), 21 November 2006 (21.11.2006), claim 1 --	1-28
A	WO 2007017731 A1 (NOKIA INC.), 15 February 2007 (15.02.2007), page 11, line 14 - line 20, claims 1,2, abstract --	1-28

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 20020172208 A1 (MALKAMAKI), 21 November 2002 (21.11.2002), claims 1-6, abstract --- -----	1-28

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Information on patent family members

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WO	0139433	A2	31/05/2001	AU	2506101	A	04/06/2001
				GB	9927523	D	00/00/0000
-----				-----			
US	20060048034	A1	02/03/2006	CN	101006684	A	25/07/2007
				EP	1784950	A	16/05/2007
				JP	2008511243	T	10/04/2008
				KR	20060018403	A	02/03/2006
				WO	2006022484	A	02/03/2006
-----				-----			
US	7139251	B1	21/11/2006	NONE			
-----				-----			
WO	2007017731	A1	15/02/2007	US	20070030828	A	08/02/2007
-----				-----			
US	20020172208	A1	21/11/2002	US	7310336	B	18/12/2007
				BR	0209809	A	01/06/2004
				CA	2446700	A	28/11/2002
				CN	1524364	A	25/08/2004
				EP	1388234	A	11/02/2004
				JP	3746271	B	15/02/2006
				JP	2004527979	T	09/09/2004
				WO	02096006	A	28/11/2002
				ZA	200308486	A	01/07/2004