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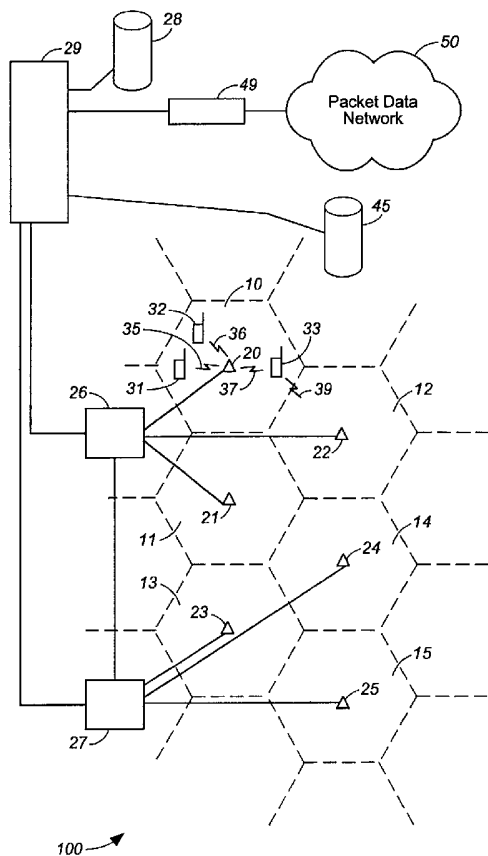
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR INCREASING DATA RATES IN A WIDEBAND MC-CDMA TELECOMMUNICATION SYSTEM



(57) Abstract: A system and method for the efficient transmission of information in a code division multiple access (CDMA) wireless telecommunication system. To increase the rate of reliable transmission, an orthogonal frequency-division multiplexing (OFDM) scheme is implemented in a direct-spread CDMA network, this combination sometimes being referred to as multi-carrier CDMA (MC-CDMA). Information (such as voice and data), interspersed with a known pilot signal, is encoded and spread across the frequency domain, rather than the time domain as in traditional CDMA; the allowable transmission bandwidth is divided into a number of carriers. To achieve even larger transmission rates, the guardband between carriers is eliminated. To prevent interference, the number of pilot transmissions is reduced and a corresponding number of frequency bins at the border of an OFDM block are loaded with zeros. The receiver simply ignores these subcarriers when reconstructing the transmitted signal.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12782

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : H04B 7/216  
 US CL : 370/208, 342

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)  
 U.S. : 370/208, 342, 320, 335, 464; 375/140, 141, 143, 260

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 practicable, search terms used)  
 Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,E	US 2004/0085919 A1 (SONG et al.) 06 May 2004, para. 0050.	1-5, 7-12
Y,P	US 2004/0071118 A1 (DABAK et al.) 15 April 2004, fig. 7.	1-5, 7-19
Y	MUQUET, et al., Cycling Prefixing or Zero Padding for Wireless Multicarrier Transmissions, 12 December 2002.	1-5, 7-19
A	US 2003/0072331 A1 (JOU) 17 April 2003, see entire document.	1-20
A	ZHOU, et al., Finite-Alphabet Based Channel Estimation for OFDM and related Multicarrier Systems, 8 August, 2001.	1-20

Further documents are listed in the continuation of Box C.

See patent family annex.

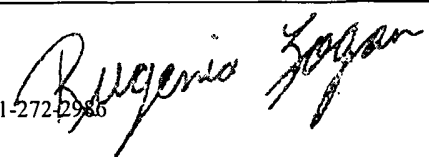
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"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

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Continuation of B. FIELDS SEARCHED Item 3:  
USPAT; US-PGPUB; EPO; JPO; DERWENT  
multicarrier