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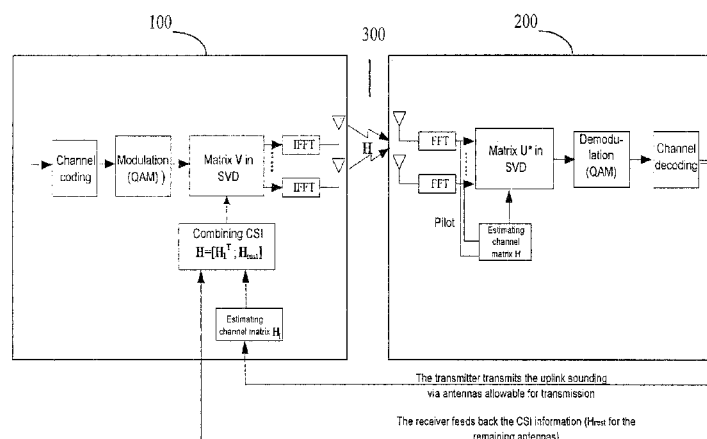
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(54) Title: PRE-CODING METHOD AND APPARATUS BASED ON UPLINK SOUNDING AND CSI FEEDBACK CHANNEL INFORMATION

Fig. 2



(57) Abstract: A signal communication method for a TDD communication system is provided, comprising steps of: at a transmitter, coding and modulating information bits, multiplying the resulting signal with a pre-coding matrix V and allocating them to OFDM sub-carriers for transmitting via antennas allowable for transmission, wherein the pre-coding matrix V is obtained based on an uplink sounding signal and CSI channel feedback information for the remaining antennas from a receiver; and at the receiver, processing the received signal, estimating a channel matrix H based on a pilot, performing pre-decoding and demodulating based on the estimated matrix H and outputting the resulting information bits. According to the present invention, the problem that the transmitter can not obtain CSI for all transmitting antennas within one frame due to the difference of antenna configurations between the uplink and the downlink in a MIMO system. Meanwhile, the system performance can be improved and the feedback overhead and the complexity of the receiver can be reduced.



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A. CLASSIFICATION OF SUBJECT MATTER***H04J 3/02(2006.01)i, H04B 7/04(2006.01)i***

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04J 3/02; H04B 17/00; H04L 1/02; H04L 27/28; H04L 5/16; H04Q 7/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: pre-coding, CSI, sounding, MIMO, OFDM, TDD

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0280340 A1 (KEUN-CHUL HWANG et al.) 06 December 2007 See abstract and figures 7-8.	1-9
A	US 2007-0153731 A1 (NADAV FINE) 05 July 2007 See claim 1 and figure 8.	1-9
A	US 2008-0095223 A1 (TONG WEN et al.) 24 April 2008 See abstract and figures 4-5.	1-9
A	MAI VU et al. "MIMO Wireless Linear Precoding," IEEE Signal Processing Magazine, September 2007, pp. 86-105 See the whole document.	1-9



Further documents are listed in the continuation of Box C.



See patent family annex.

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