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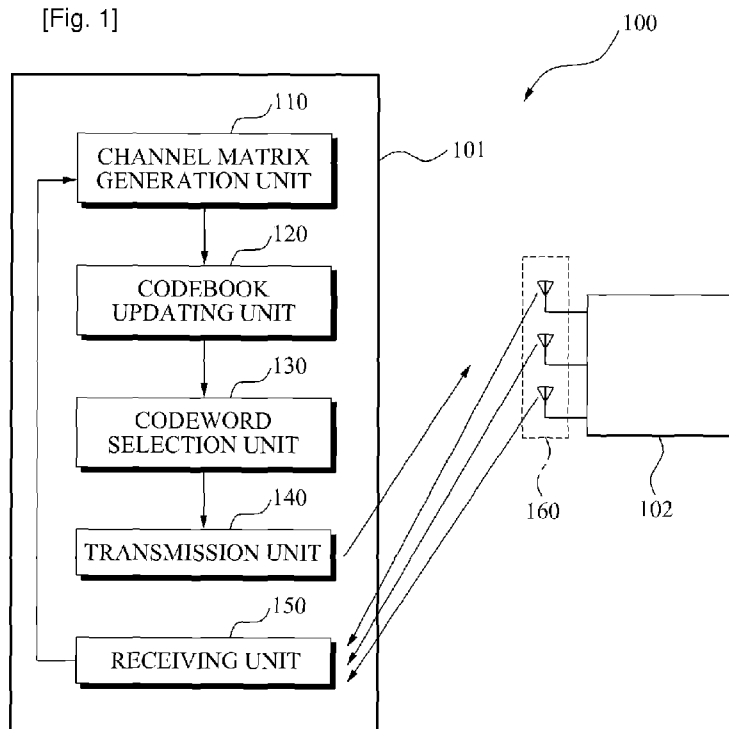
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[Continued on next page]

(54) Title: MULTIPLE ANTENNA COMMUNICATION SYSTEM INCLUDING ADAPTIVE UPDATING AND CHANGING OF CODEBOOKS

[Fig. 1]



(57) Abstract: Communication between a base station with multiple transmission antennas and a mobile station is provided. The base station and the mobile station may recognize or estimate, respectively, a channel between the base station and the mobile station, and update a previous codebook with a new codebook based on a variation of the channel. In this instance, the mobile station may provide feedback information to the base station using the new codebook, and the base station may generate a transmission signal for the mobile station using the new codebook and the feedback information.



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A. CLASSIFICATION OF SUBJECT MATTER IPC: H04B 7/06 (2006.01); H04B 7/04 (2006.01); H04L 1/00 (2006.01) 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) H04B, 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 practicable, search terms used) WPI, EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008043817 A1 (NOKIA SIEMENS NETWORKS GMBH & CO. KG) 17 April 2008 (17.04.2008) abstract, figs. 2, 3; page 2, line 14 - page 8, line 10; page 9, line 1 - page 10, line 8.	1, 3, 8-18, 21-27, 31-34, 36-38, 45, 46
X	WO 2007133564 A2 (INTERDIGITAL TECHNOLOGY CORPORATION) 22 November 2007 (22.11.2007) abstract, figs. 3-6; paragraphs [0026]-[0090].	1, 3, 8-18, 21-27, 31-34, 36-38, 45, 46
A	AMIRI, K. et al. "Adaptive Codebook for Beamforming in Limited Feedback MIMO Systems", 42nd Annual Conference on Information Sciences and Systems, CISS 2008, 19 March 2008 (19.03.2008) pages 994-998, ISBN 978-1-4244-2246-3, XP031283007 sections I-IV.	1, 18, 27, 34, 36-38, 45
☒ Further documents are listed in the continuation of Box C. ☒ 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 application or patent 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		
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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	SAMANTA, R. et al. "Codebook Adaptation for Quantized MIMO Beamforming Systems", Conference Record of the Thirty-Ninth Asilomar Conference on Signals, Systems and Computers, 2005, 28 October 2005 (28.10.2005) pages 376-380, ISSN 1058-6393, ISBN 1-4244-0131-3, XP010900022 sections I-IV.	1, 18, 27, 34, 36-38, 45
A	LEUS, G. et al. "Quantized Feedback and Feedback Reduction for Precoded Spatial Multiplexing MIMO Systems", 9th International Symposium on Signal Processing and Its Applications, ISSPA 2007, 12 February 2007 (12.02.2007) pages 1-6, ISBN 978-1-4244-0778-1, XP031280781 sections 1-4.	1, 18, 27, 34, 36-38, 45
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