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(54) Title: SYNCHRONIZATION IN A BROADCAST OFDM SYSTEM USING TIME DIVISION MULTIPLEXED PILOTS

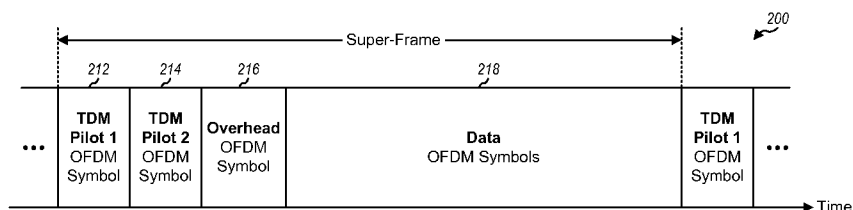


FIG. 2

(57) Abstract: In an OFDM system, a transmitter broadcasts a first TDM pilot on a first set of subbands followed by a second TDM pilot on a second set of subbands in each frame. The subbands in each set are selected from among N total subbands such that (1) an OFDM symbol for the first TDM pilot contains at least S_1 identical pilot-1 sequences of length L_1 and (2) an OFDM symbol for the second TDM pilot contains at least S_2 identical pilot-2 sequences of length L_2 , where $L_2 > L_1$, $S_1 \cdot L_1 = N$, and $S_2 \cdot L_2 = N$. The transmitter may also broadcast an FDM pilot. A receiver processes the first TDM pilot to obtain frame timing (e.g., by performing correlation between different pilot-1 sequences) and further processes the second TDM pilot to obtain symbol timing (e.g., by detecting for the start of a channel impulse response estimate derived from the second TDM pilot).

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04L H04J

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2005/022797 A (QUALCOMM INC [US]; LING FUYUN [US]; GUPTA ALOK [US]; KRISHNAMOORTHY RA) 10 March 2005 (2005-03-10) the whole document	1-23
X	WO 98/00946 A (UNIV LELAND STANFORD JUNIOR [US]) 8 January 1998 (1998-01-08) page 17, line 6 - page 20, line 11 page 24, line 21 - page 27, line 2 figures 5,6 abstract	1-23

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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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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.
A	US 2006/209927 A1 (KHANDEKAR AAMOD [US] ET AL) 21 September 2006 (2006-09-21) abstract paragraphs [0009] - [0012] paragraphs [0032] - [0040] paragraphs [0114] - [0120] figures 2,5,6	1-23

INTERNATIONAL SEARCH REPORT

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