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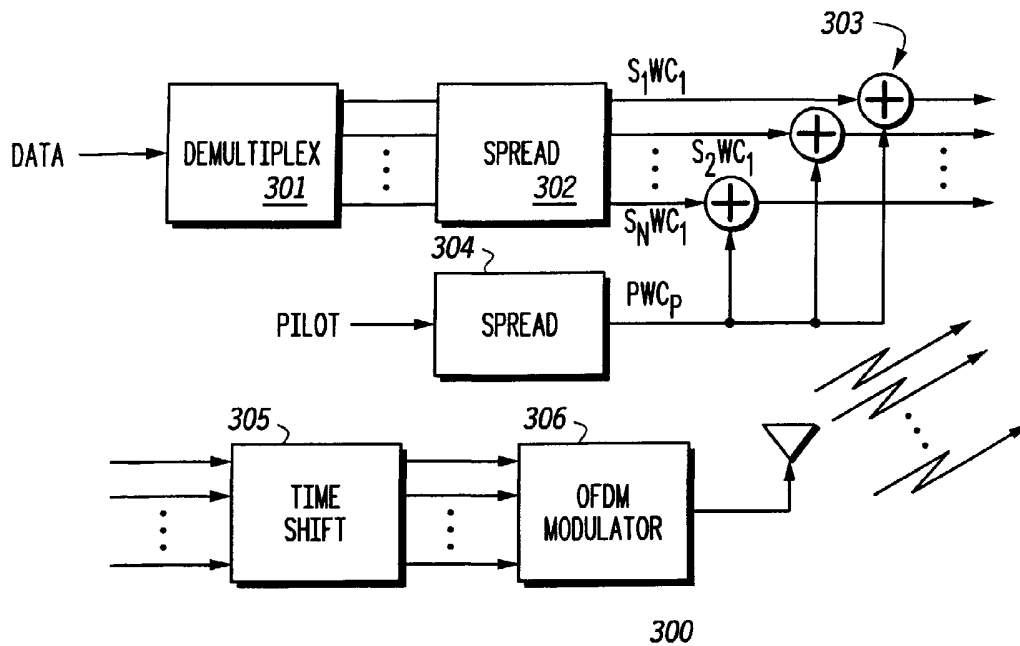
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(54) Title: OFDM COMMUNICATION SYSTEM



(57) Abstract: A Staggered spread OFCDM scheme is utilized that improves channel estimation. In a first embodiment, each chip stream is time shifted (Fig. 5 unit 305) by a predetermined amount and then transmitted on a predetermined subcarrier. This results in time-spread symbols being staggered (time-offsets) on different subcarriers (Fig. 4) allowing for more frequent sampling of the channel. In a second embodiment a staggered spreading approach is applied in the frequency dimension (Fig. 4) to improve the performance of a system with spreading in the frequency dimension.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H 04 B 7/216, H 04 J 3/06, H 04 J 11/00
 US CL : 370/335, 342, 350, 208, 209

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)
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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)

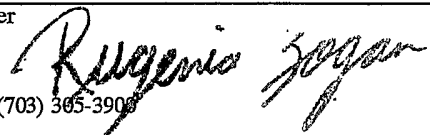
C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,108,317 A (JONES et al) 22 August 2000, column 17, lines 58-62; column 18, lines 15-54.	1-3 & 8
A	US 2001/0038630 A (TONG et al) 8 November 2001, page 6-7, paragraphs 0076-0077)	1-9
A	US 5,914,933 A (CIMINI et al) 22 June 1999, column 4, lines 17-28	1-9

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

* Special categories of cited documents:	"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
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"O" document referring to an oral disclosure, use, exhibition or other means		
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