US 20060146867A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0146867 A1**

Lee et al. (43) **Pub. Date: Jul. 6, 2006**

(54) **APPARATUS AND METHOD FOR SIGNAL CONSTITUTION FOR DOWNLINK OF OFDMA-BASED CELLULAR SYSTEM**

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(21) Appl. No.: **10/539,166**

(22) PCT Filed: **Jun. 2, 2003**

(86) PCT No.: **PCT/KR03/01083**

(30) **Foreign Application Priority Data**

Dec. 13, 2002 (KR) 10-2002-0079598

Publication Classification

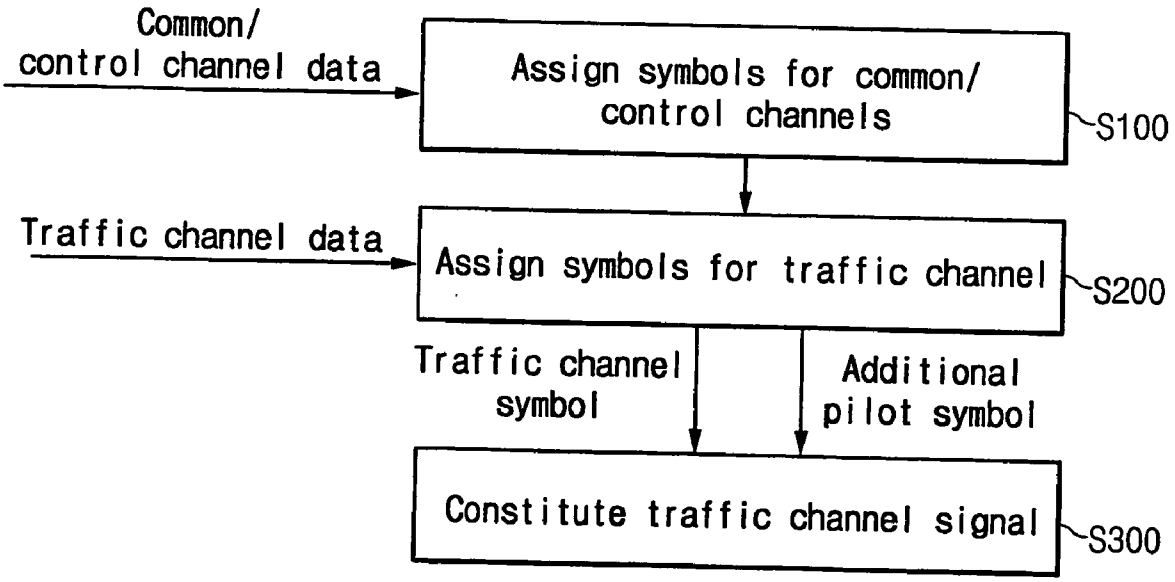
(51) **Int. Cl.**

H04Q 7/20	(2006.01)
H04J 3/16	(2006.01)
H04J 3/22	(2006.01)
H04J 11/00	(2006.01)

(52) **U.S. Cl.** **370/465**; 370/208; 455/452.1

(57) **ABSTRACT**

Disclosed are an adaptive pilot symbol assignment method that flexibly controls the number of transmit antennas according to each user's moving speed, channel status, or user request, and assigns proper pilot symbols in the downlink of an OFDMA (Orthogonal Frequency Division Multiplexing Access) based cellular system; and a sub-carrier allocation method for high-speed mobile that allocates some sub-carriers to assign proper pilot symbols for ultrahigh-speed mobile users, and the rest of the sub-carriers to the other users to assign proper pilot symbols to the users, on the assumption that the ultrahigh-speed mobile users have a traffic volume almost insignificant to the whole traffic volume.



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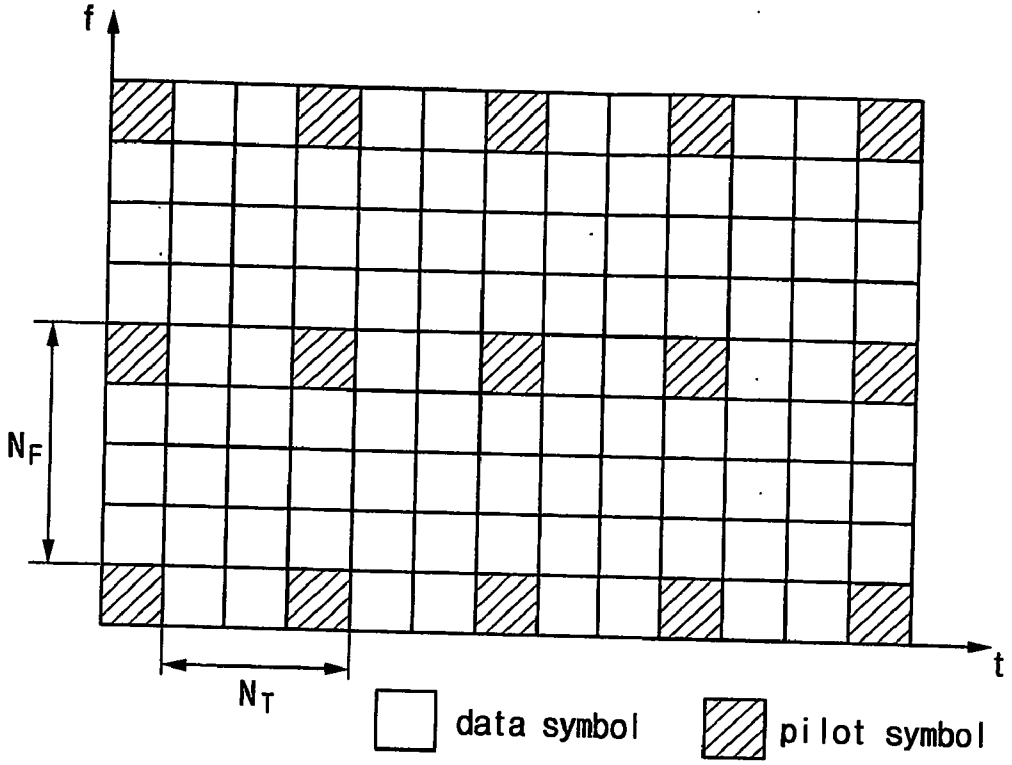

Fig. 2

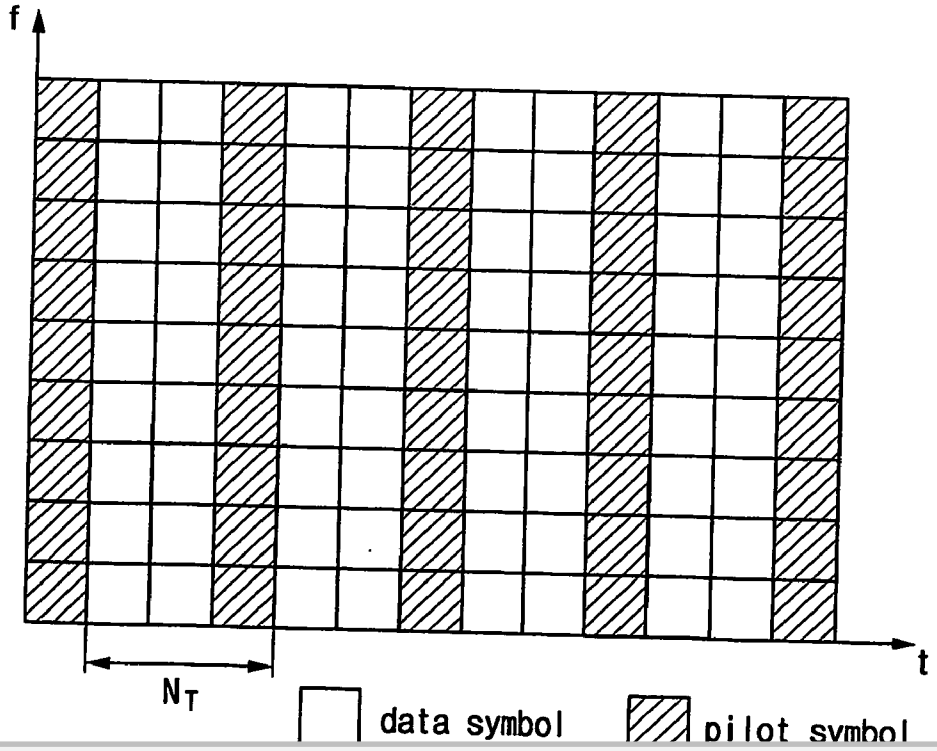

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Fig. 3

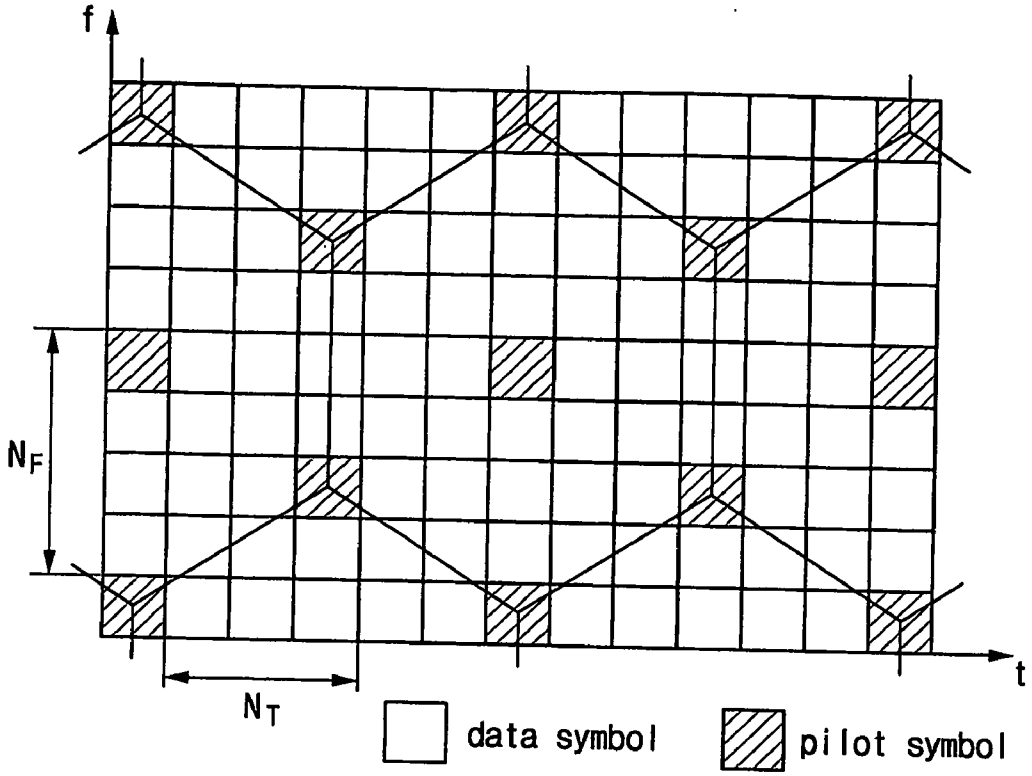

Fig. 4

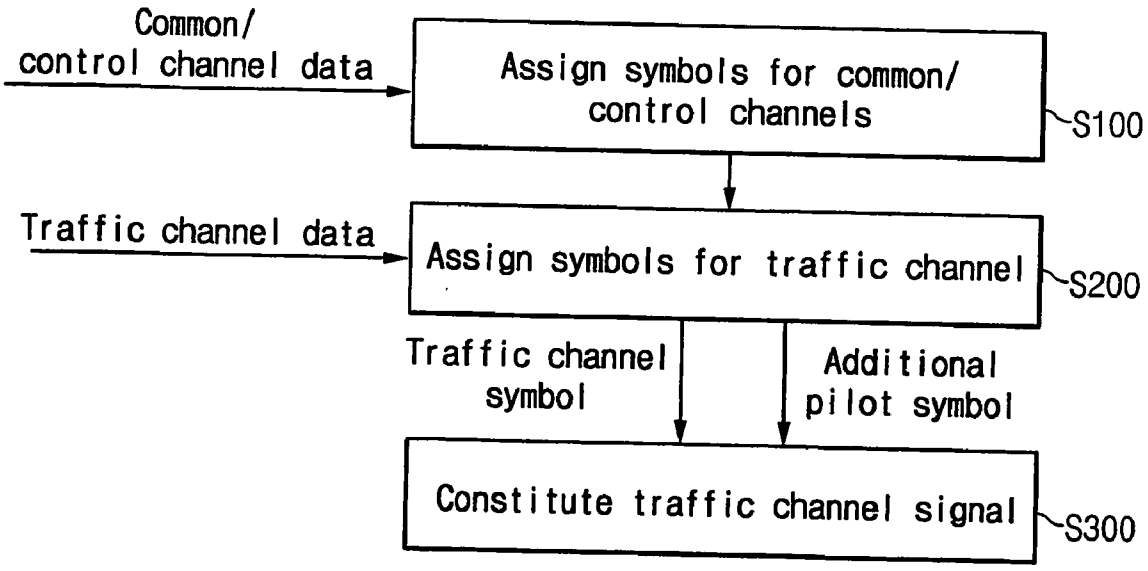

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Fig. 5

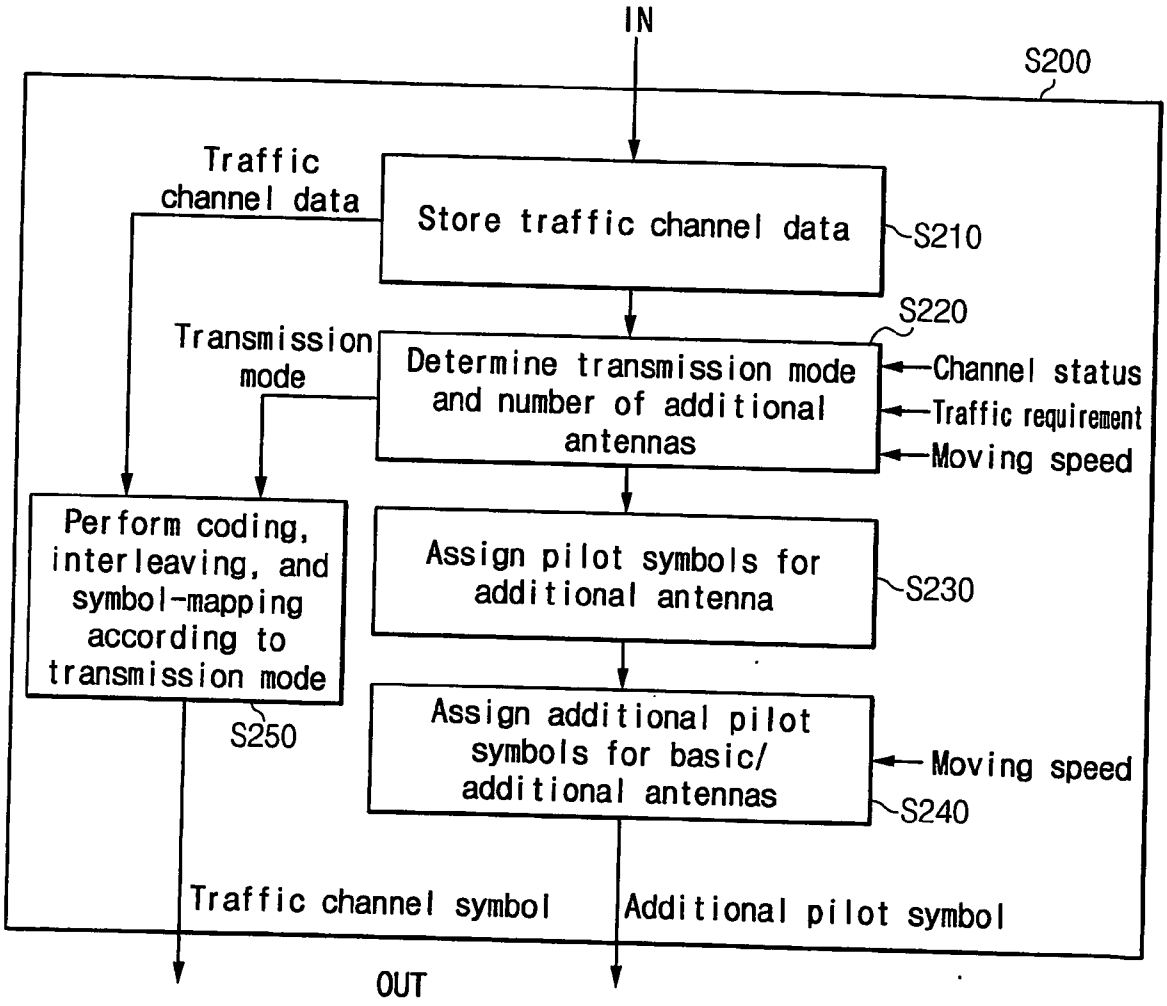

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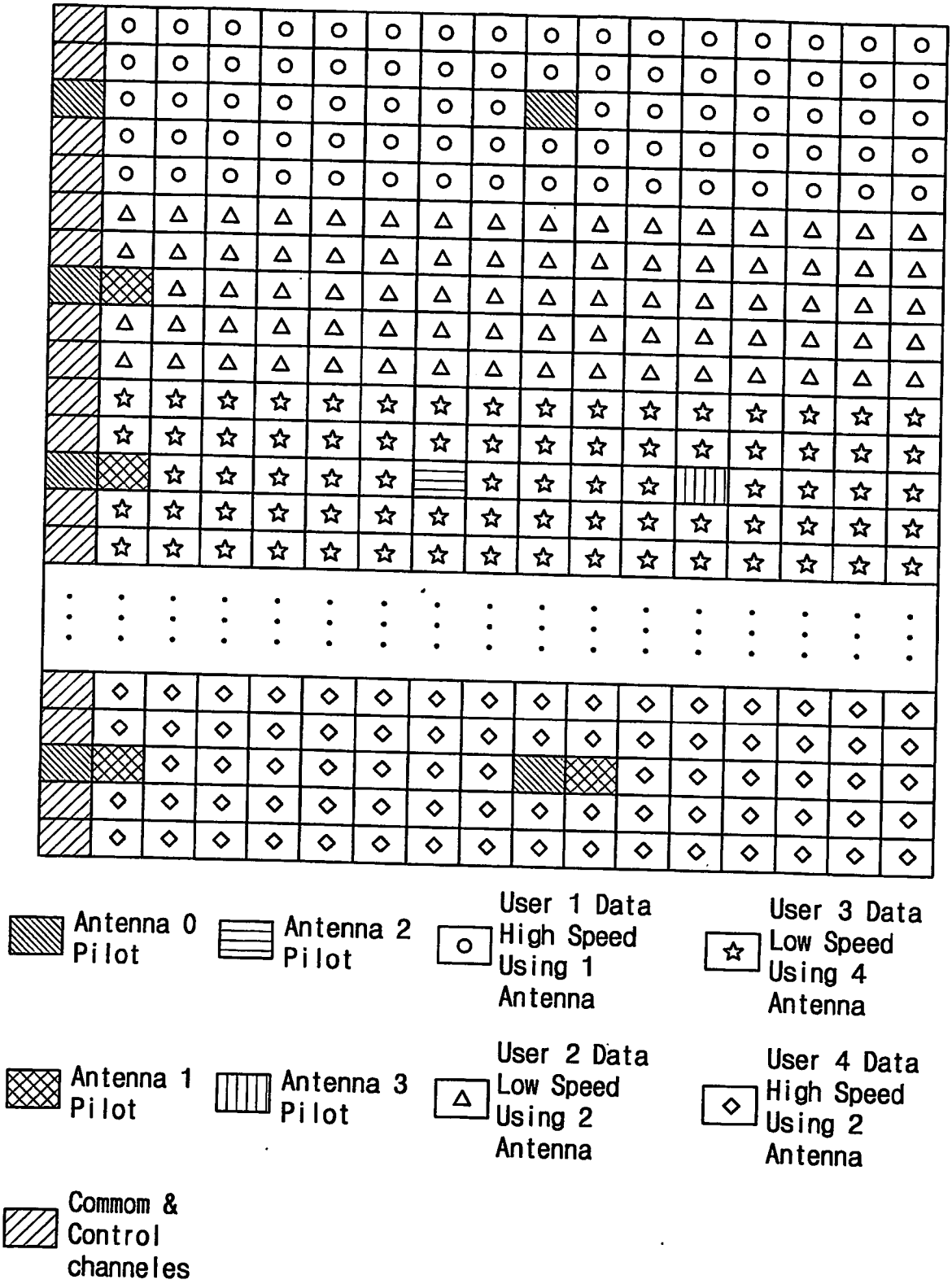
Fig. 6



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