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(54) **METHOD AND APPARATUS FOR CHANNEL STATE FEEDBACK USING ARITHMETIC CODING**

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See application file for complete search history.

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(57) **ABSTRACT**

Disclosed are the design and implementation of a CSI feedback channel in a multi-carrier wireless communication system. An apparatus and a method for channel state feedback using arithmetic coding are provided to ensure efficiency and reliability of a system by transmitting the CSI while compressing the CSI with a predetermined compression rate selected depending on a channel state. The apparatus for CSI feedback in a wireless communication system performing channel estimation at a transmitter or a receiver by using a communication channel includes a transmitter terminal transmitting a signal for CSI measurement by using the communication channel, and a receiver terminal receiving the signal from the transmitter terminal, checking a channel state based on the received signal, and transmitting the signal to the transmitter terminal after compressing the signal according to the channel state.

17 Claims, 5 Drawing Sheets

