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Eberlein et al.

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(54) **COARSE FREQUENCY SYNCHRONISATION IN MULTICARRIER SYSTEMS**

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H04L 27/28 (2006.01)

(52) **U.S. Cl.** **375/260**

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See application file for complete search history.

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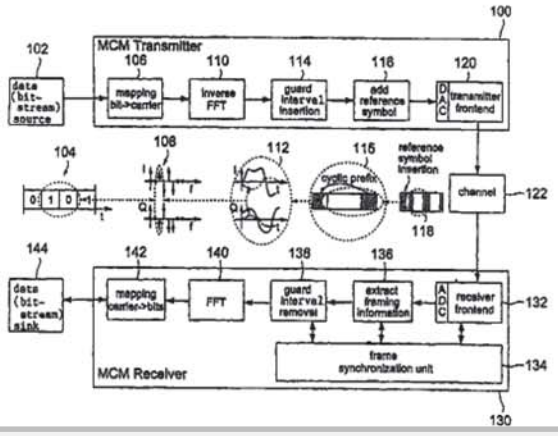
(57) **ABSTRACT**

A method for generating a signal having a frame structure, each frame of the frame structure comprising at least one useful symbol, a guard interval associated to the at least one useful symbol and a reference symbol, comprises the steps of performing an amplitude modulation of a bit sequence such that the envelope of the amplitude modulated bit sequence defines a reference pattern of the reference symbol and inserting the amplitude modulated bit sequence into said signal as said reference symbol. A method for frame synchronization of a signal having such a frame structure comprises the steps of receiving the signal, down-converting the received signal, performing an amplitude-demodulation of the down-converted signal in order to generate an envelope, correlating the envelope with a predetermined reference pattern in order to detect a signal reference pattern of the reference symbol in the signal, and performing the frame synchronization based on the detection of the signal reference pattern.

46 Claims, 3 Drawing Sheets



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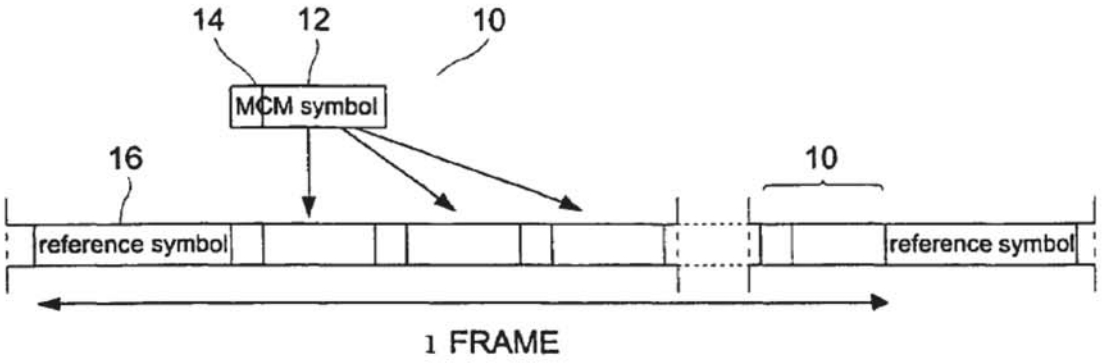

FIG.1

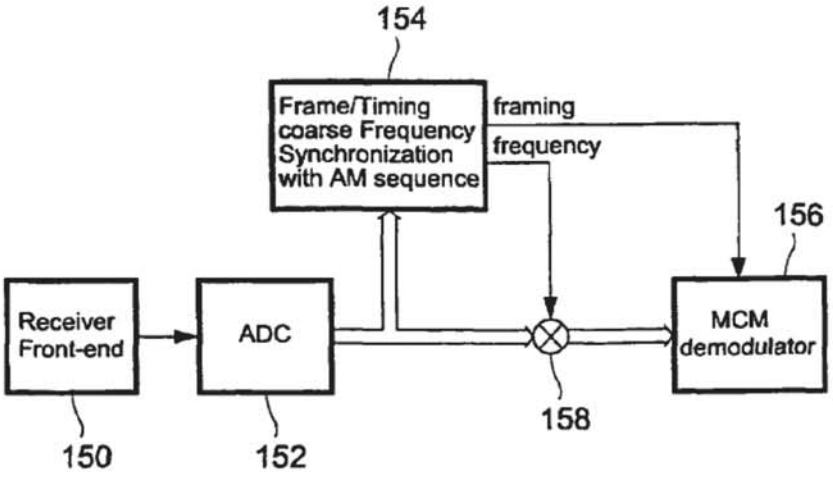

FIG.3

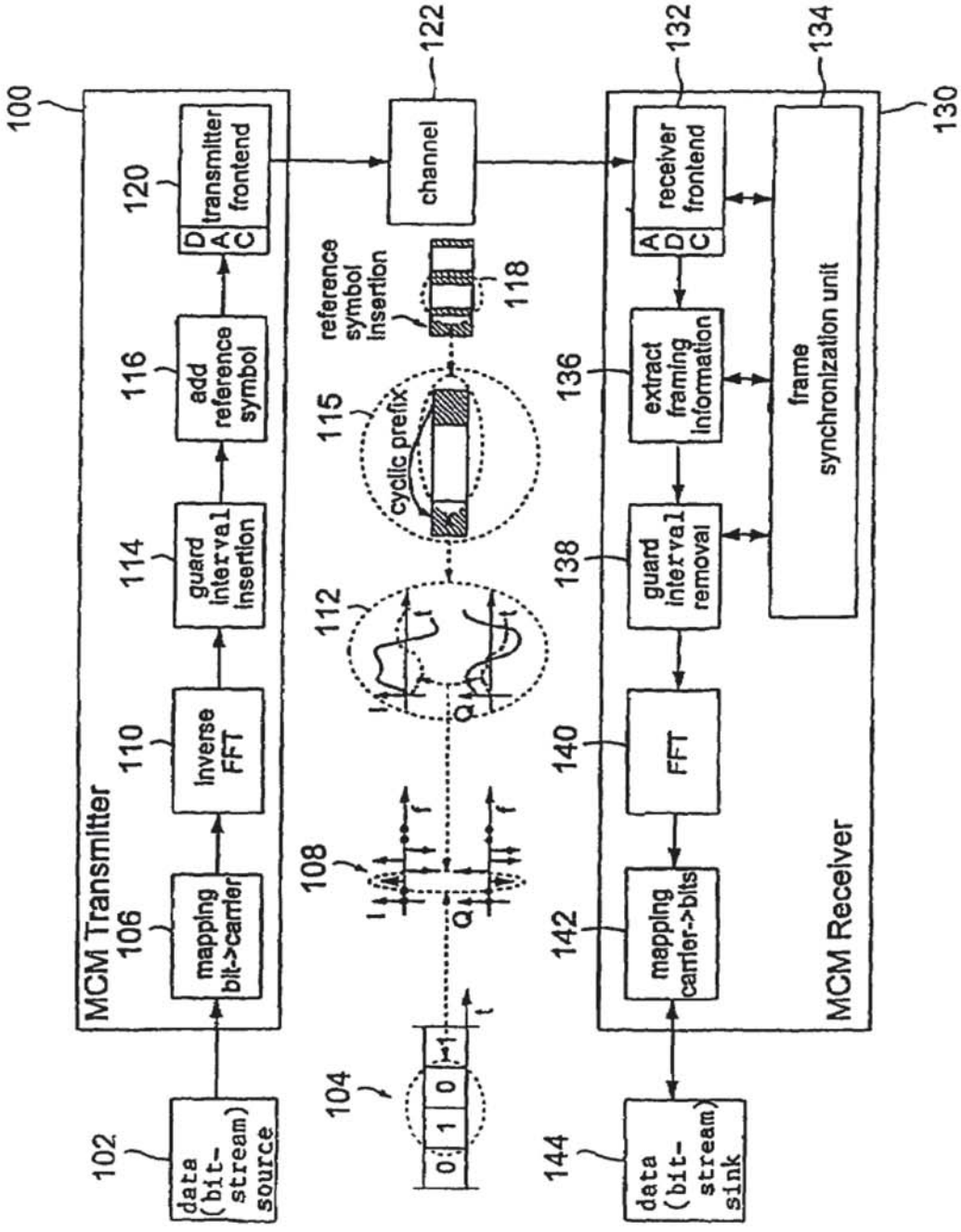

FIG.2

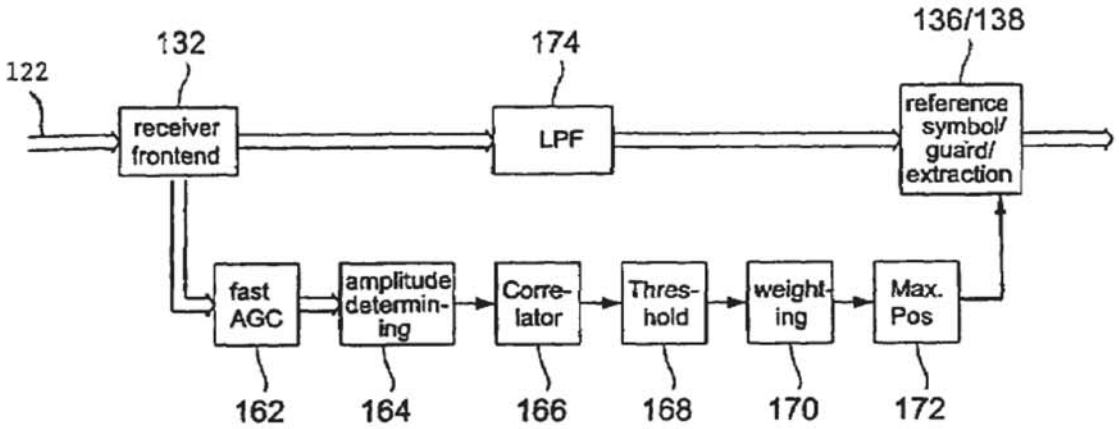

FIG.4

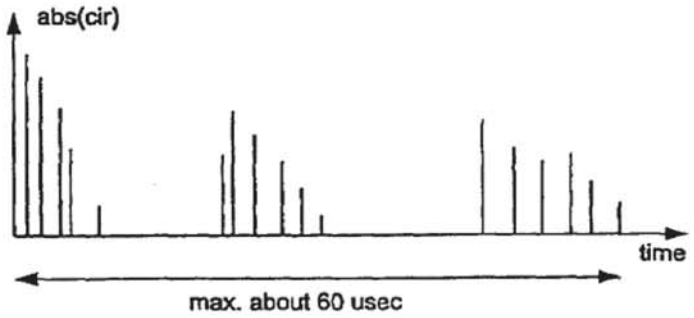

FIG.5

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