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Maltsev et al.

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(54) **MULTIPLE INPUT MULTIPLE OUTPUT MULTICARRIER COMMUNICATION SYSTEM AND METHODS WITH QUANTIZED BEAMFORMING FEEDBACK**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1240 days.

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H04L 27/28 (2006.01)

(Continued)

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Primary Examiner—Khai Tran

(58) **Field of Classification Search** 375/260, 375/347, 267, 147, 150, 149; 455/403, 562.1, 455/101, 102, 103, 69, 73; 342/372, 368, 342/377, 383

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See application file for complete search history.

(57) **ABSTRACT**

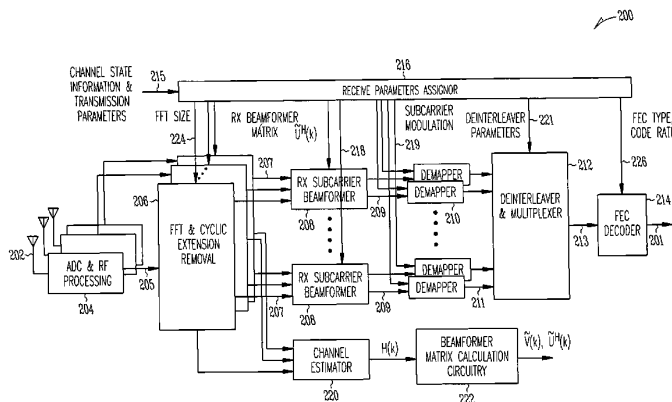
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A multicarrier receiver generates a quantized transmit beamformer matrix (\tilde{V}) for each subcarrier of a multicarrier communication channel for use by a multicarrier transmitting station. The multicarrier receiver applies a corrected receiver beamformer matrix (\tilde{U}^{H*}) to received subcarriers signals generated by signals received from the transmitting station.

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34 Claims, 11 Drawing Sheets



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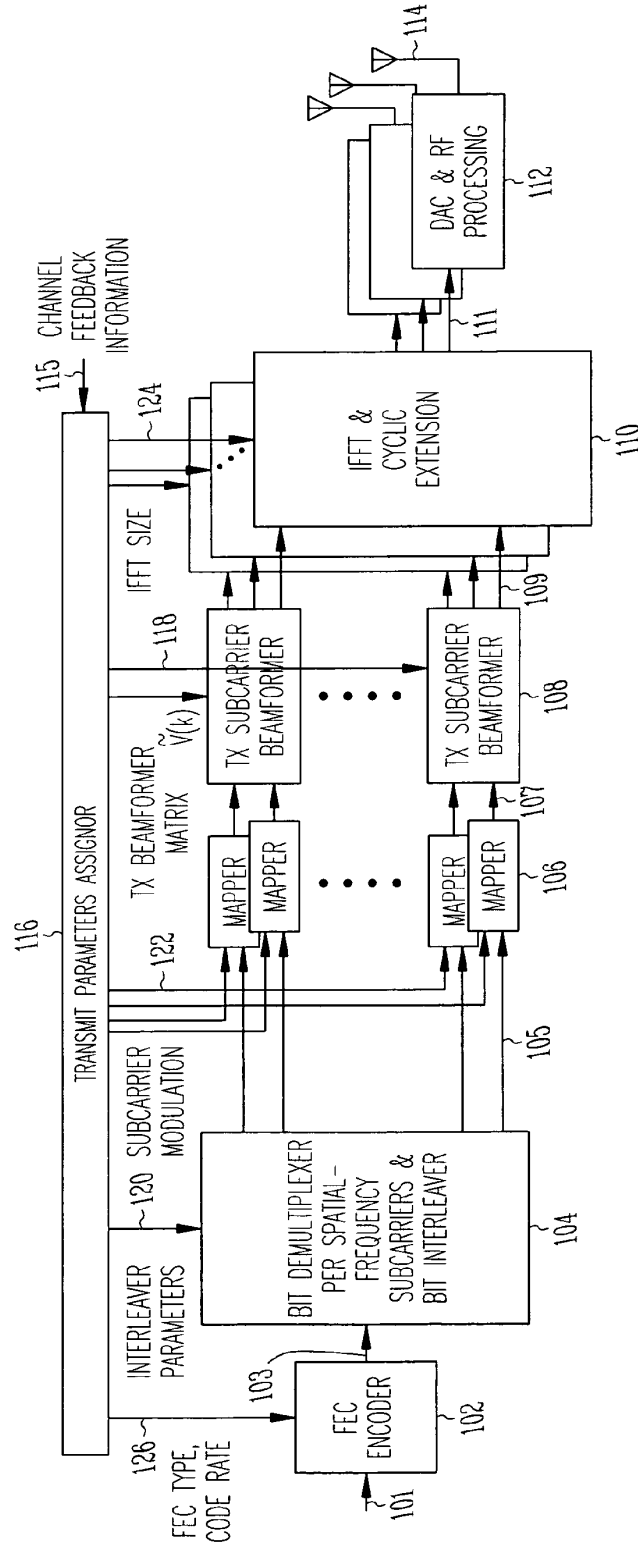


Fig. 1

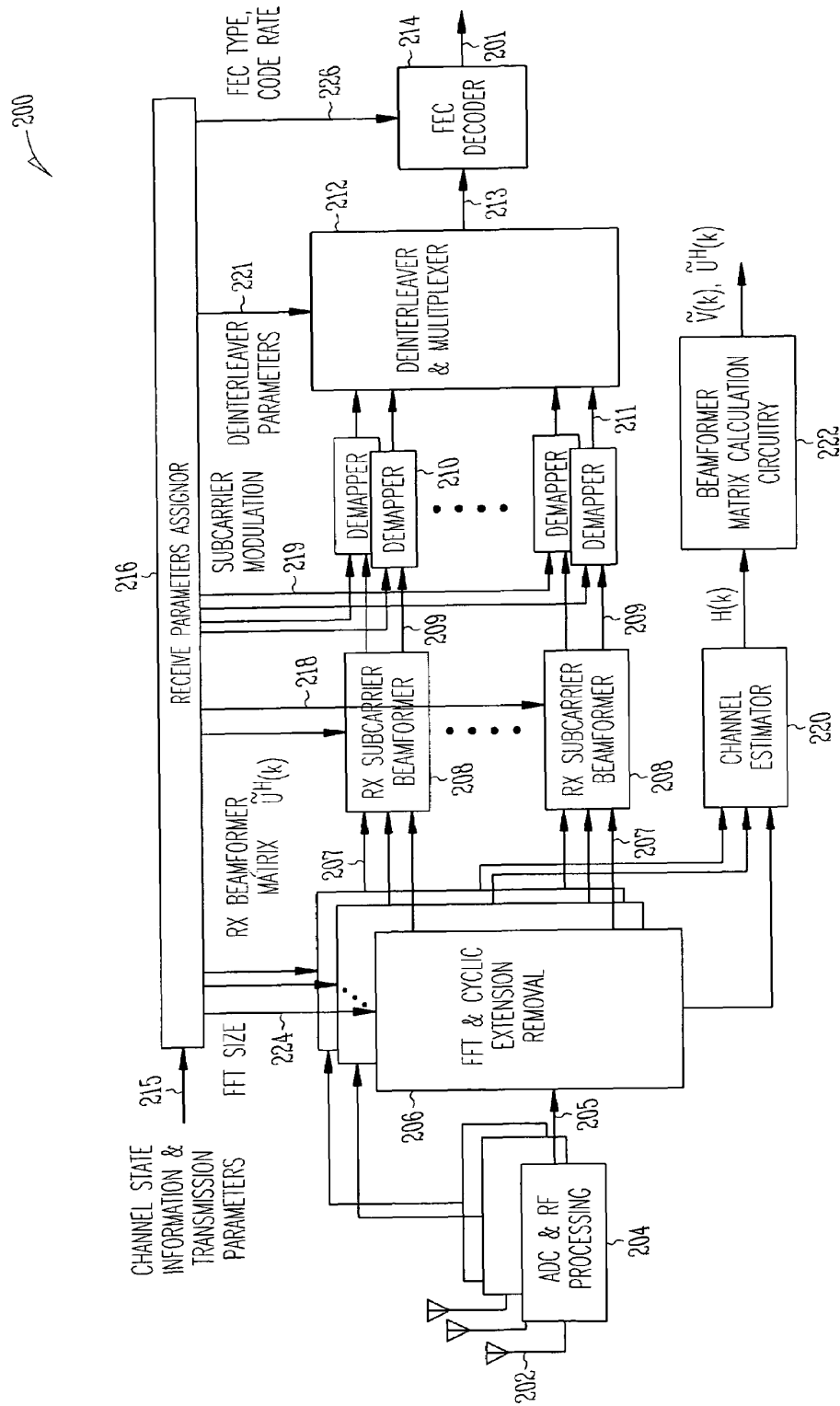


Fig. 2

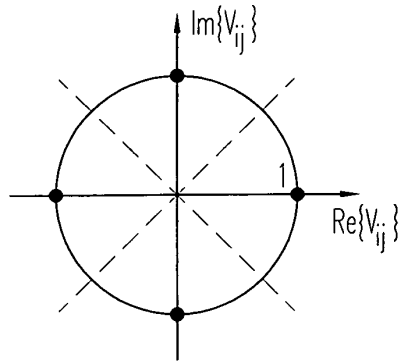


Fig. 3A

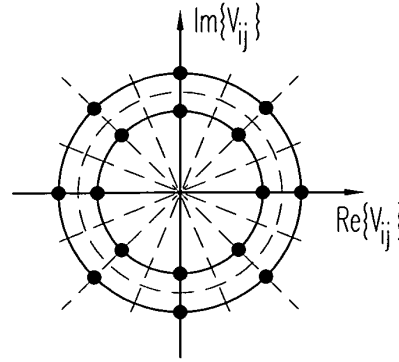


Fig. 3B

AMPLITUDE SUBFIELD

402 ↗

401 AMPLITUDE BITS	403 AMPLITUDE
000	$\sqrt{0.0625}$
001	$\sqrt{0.1875}$
011	$\sqrt{0.3125}$
010	$\sqrt{0.4375}$
110	$\sqrt{0.5625}$
111	$\sqrt{0.6875}$
101	$\sqrt{0.8125}$
100	$\sqrt{0.9375}$

Fig. 4A

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