(US)(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1297 days. (21) Appl. No.: 10/875,111 (22)Filed: Jun. 23, 2004 (65)**Prior Publication Data** US 2005/0286404 A1 Dec. 29, 2005 (51) **Int. Cl.** H04Q 7/00 (2006.01)(52)**U.S. Cl.** ...... 370/334; 375/267; 455/562.1 Field of Classification Search ...... 370/477, 370/478, 480, 498, 343, 345, 203, 208, 252–254, 370/310, 328, 334, 447; 375/299, 347, 260, 375/267; 455/562.1, 561

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See application file for complete search history.

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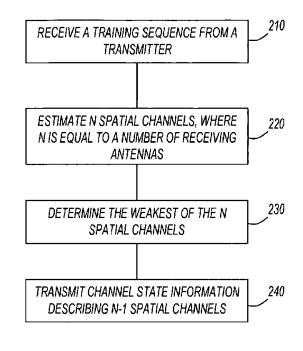
Primary Examiner—Ricky Ngo Assistant Examiner—Pao Sinkantarakorn (74) Attorney, Agent, or Firm—Dana B. Lei Patent Services, PLLC

## (57) ABSTRACT

200

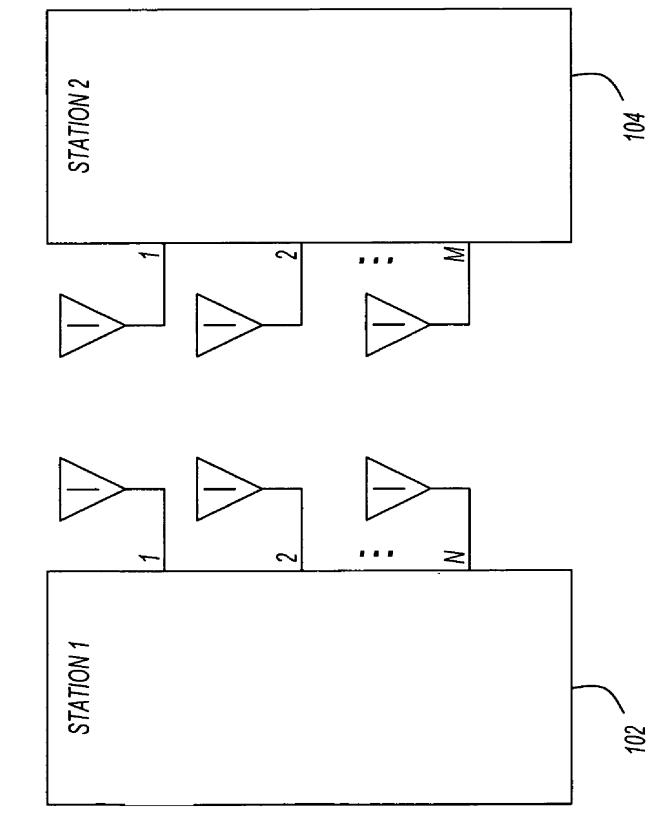
Stations in an N×N multiple-input-multiple-wireless network always puncture the weak nel. A receiving station determines channels for N spatial channels and feeds back to station channel state information for only N nels. The channel state information may including matrix to cause the transmitting station spatial channels.

# 13 Claims, 6 Drawing Sheet











# TRANSMITTER ESTIMATE N SPATIAL CHANNELS, WHERE N IS EQUAL TO A NUMBER OF RECEIVING **ANTENNAS** DETERMINE THE WEAKEST OF THE N SPATIAL CHANNELS TRANSMIT CHANNEL STATE INFORMATION DESCRIBING N-1 SPATIAL CHANNELS





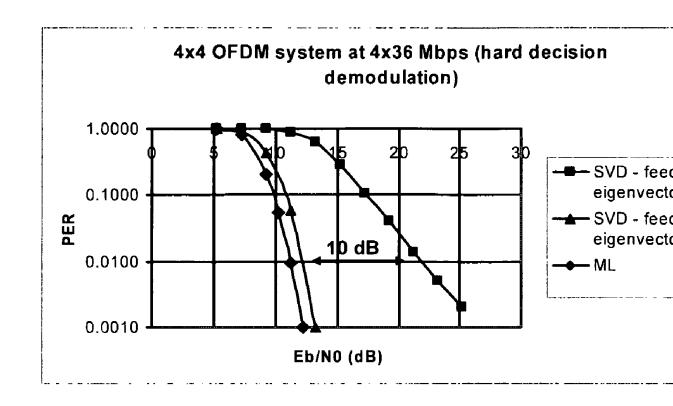


FIG. 3

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