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(54) **USER EQUIPMENT USING COMBINED CLOSED LOOP/OPEN LOOP POWER CONTROL**

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Related U.S. Application Data

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(51) **Int. Cl.**^{7} **H04B 1/69**
(52) **U.S. Cl.** **375/130**; 375/295; 455/522; 370/342
(58) **Field of Search** 375/130, 295, 375/146; 370/335, 342, 252; 455/69, 522

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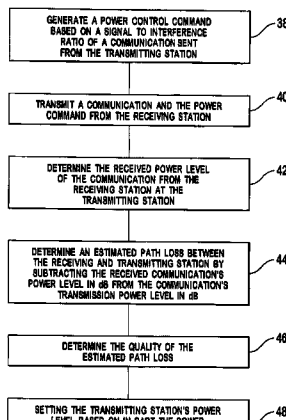
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(57) **ABSTRACT**

A spread spectrum time division duplex user equipment uses frames with time slots for communication. It receives power commands and receives a first communication having a transmission power level in a first time slot. It measures a power level of the first communication as received and determines a pathloss estimate based on in part the measured received first communication power level and the first communication transmission power level. The user equipment sets a transmission power level for a second communication in a second time slot from the user equipment based on in part the pathloss estimate weighted by a quality factor and adjusted by the power commands.

7 Claims, 7 Drawing Sheets

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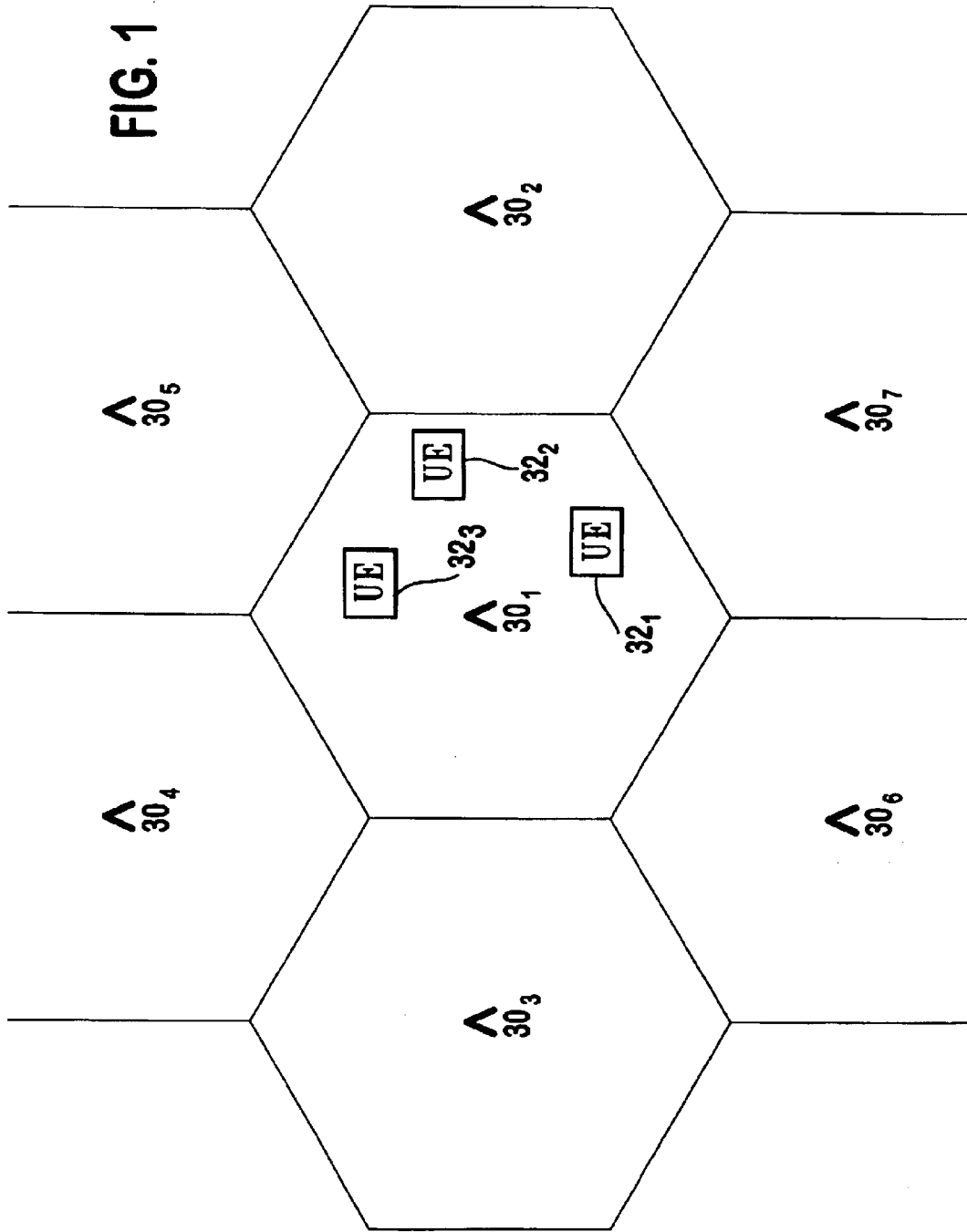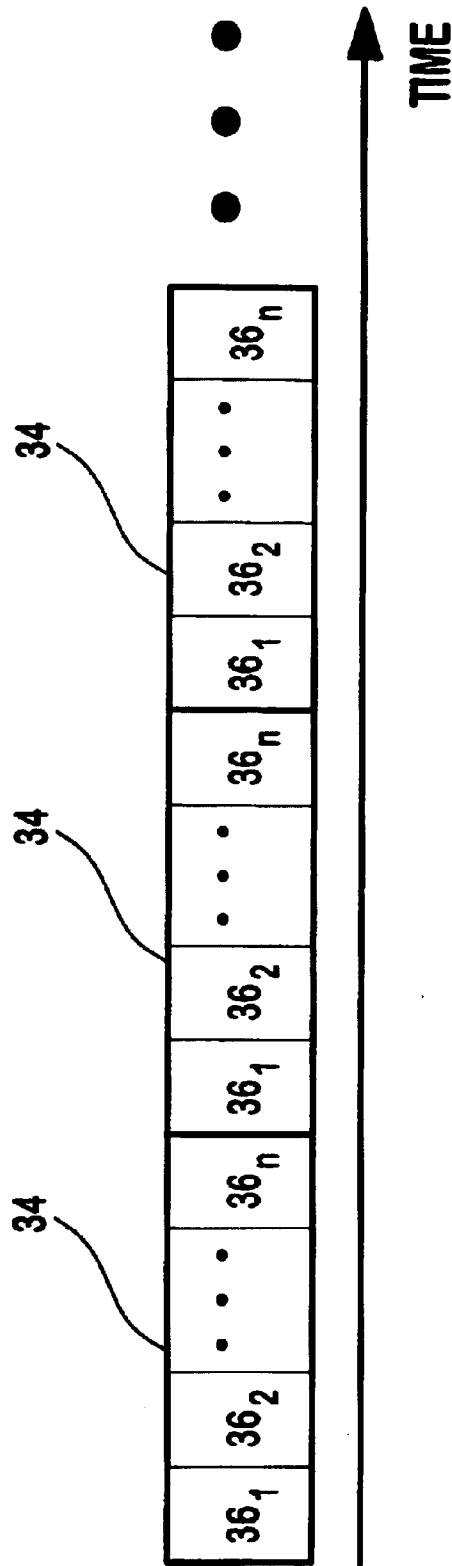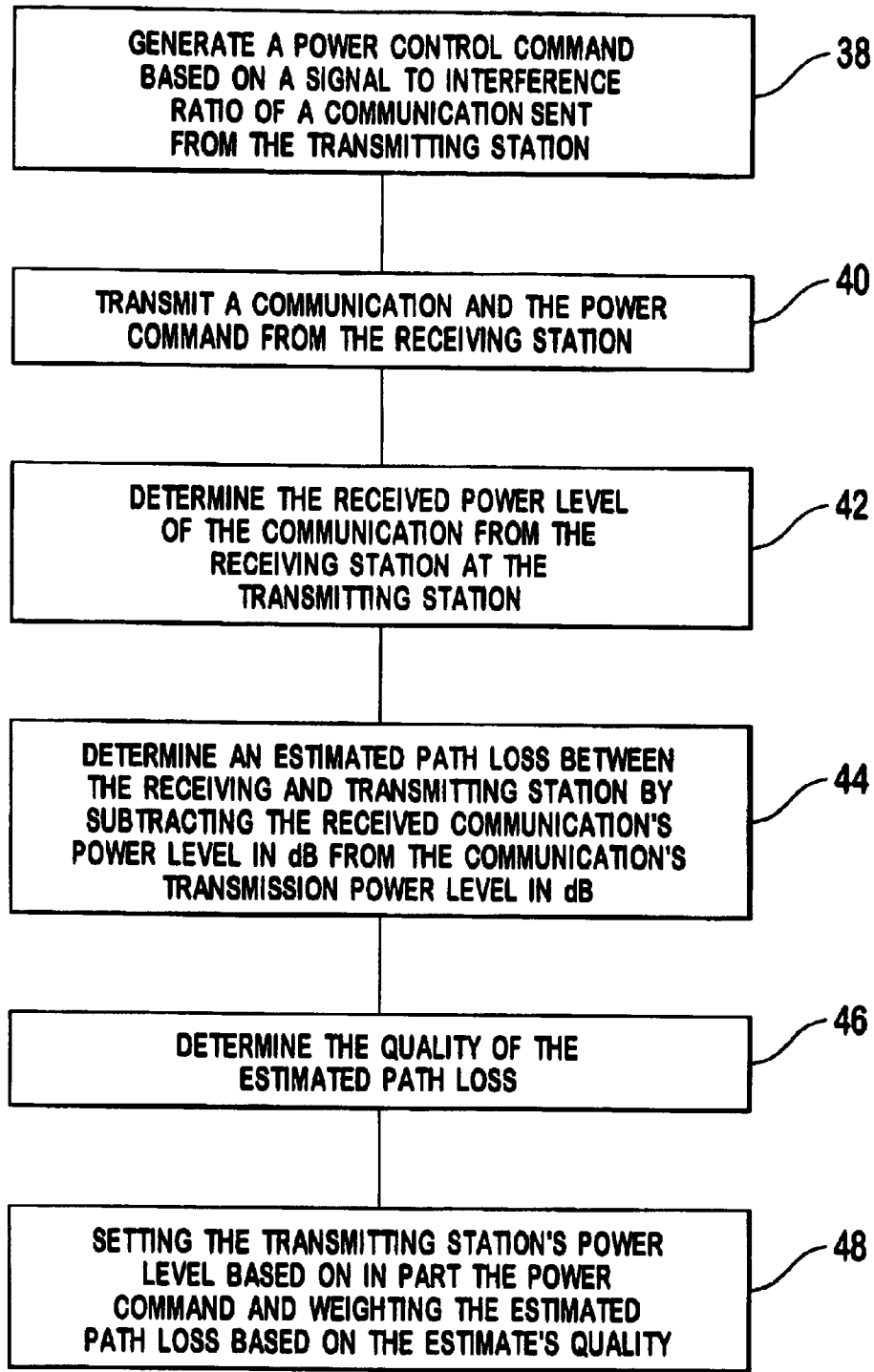
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FIG. 1

FIG. 2

FIG. 3

GENERATE A POWER CONTROL COMMAND
BASED ON A SIGNAL TO INTERFERENCE
RATIO OF A COMMUNICATION SENT
FROM THE TRANSMITTING STATION — 38

TRANSMIT A COMMUNICATION AND THE POWER
COMMAND FROM THE RECEIVING STATION — 40

DETERMINE THE RECEIVED POWER LEVEL
OF THE COMMUNICATION FROM THE
RECEIVING STATION AT THE
TRANSMITTING STATION — 42

DETERMINE AN ESTIMATED PATH LOSS BETWEEN
THE RECEIVING AND TRANSMITTING STATION BY
SUBTRACTING THE RECEIVED COMMUNICATION'S
POWER LEVEL IN dB FROM THE COMMUNICATION'S
TRANSMISSION POWER LEVEL IN dB — 44

DETERMINE THE QUALITY OF THE
ESTIMATED PATH LOSS — 46

SETTING THE TRANSMITTING STATION'S POWER
LEVEL BASED ON IN PART THE POWER
COMMAND AND WEIGHTING THE ESTIMATED
PATH LOSS BASED ON THE ESTIMATE'S QUALITY — 48

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