(54)   **METHOD AND APPARATUS FOR REDUCING FEEDBACK OVERHEAD**

(57)   An apparatus comprising a receiver coupled to
a digital subscriber line (DSL) between an exchange site
and a customer premise equipment (CPE) and config-
ured to send a feedback error message to train a pre-
coder coupled to the exchange site, wherein the feed-
back error message comprises a plurality of error com-
ponents and an indication of a quantity of bits per error
component, a quantization accuracy per error compo-
nent, or both. Included is a method comprising determin-
ing a range of error for a plurality of error components of
a pilot signal; determining a quantity of bits for represent-
ing error such that a full error range is preserved, a quan-
tization accuracy such that the full error range is repre-
sented by a fixed number of feedback bits, or both based
on the range of error for the error components; and trans-
mitting an error feedback signal that comprises the error
components and indicates the quantity of bits, the quan-
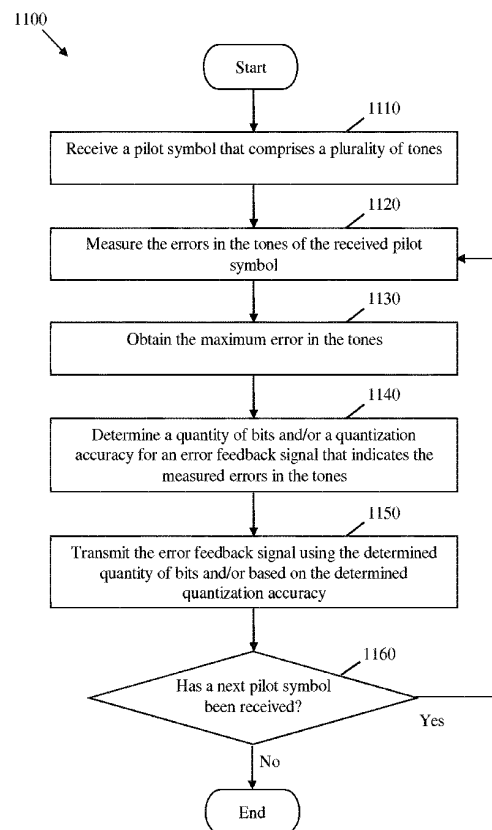tization accuracy, or both.

FIG. 11

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