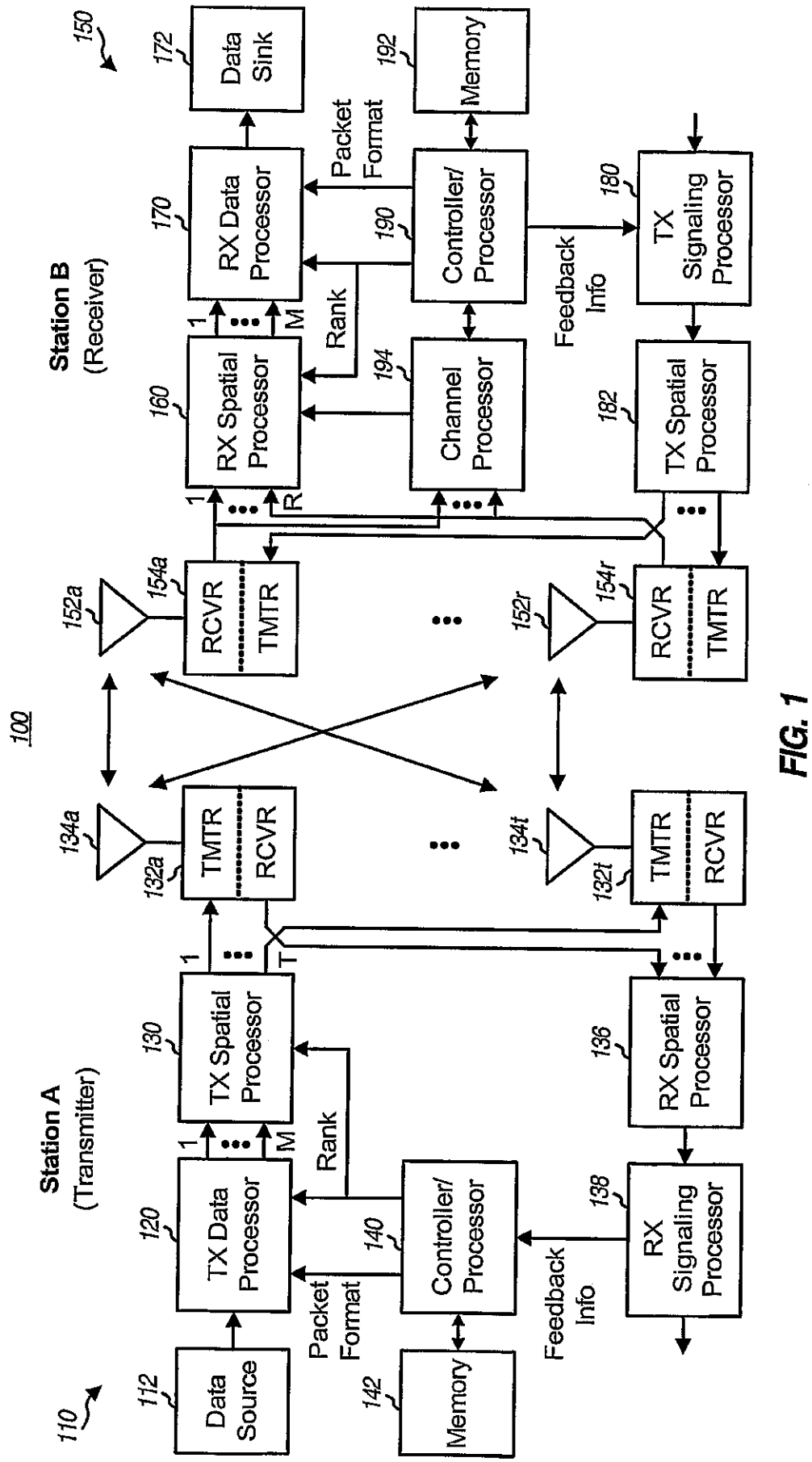

100
110
Station A
(Transmitter)
Data Source
112
TX Data Processor
120
TX Spatial Processor
130
1
M
T
Rank
Packet Format
Controller/ Processor
140
Memory
142
Feedback Info
RX Signaling Processor
138
RX Spatial Processor
136
TMTR
RCVR
132a
132t
134a
134t
RCVR
TMTR
154a
154r
152a
152r
Station B
(Receiver)
RX Spatial Processor
160
RX Data Processor
170
R
Data Sink
172
Channel Processor
194
Controller/ Processor
190
Memory
192
TX Spatial Processor
182
TX Signaling Processor
180
150

FIG. 1

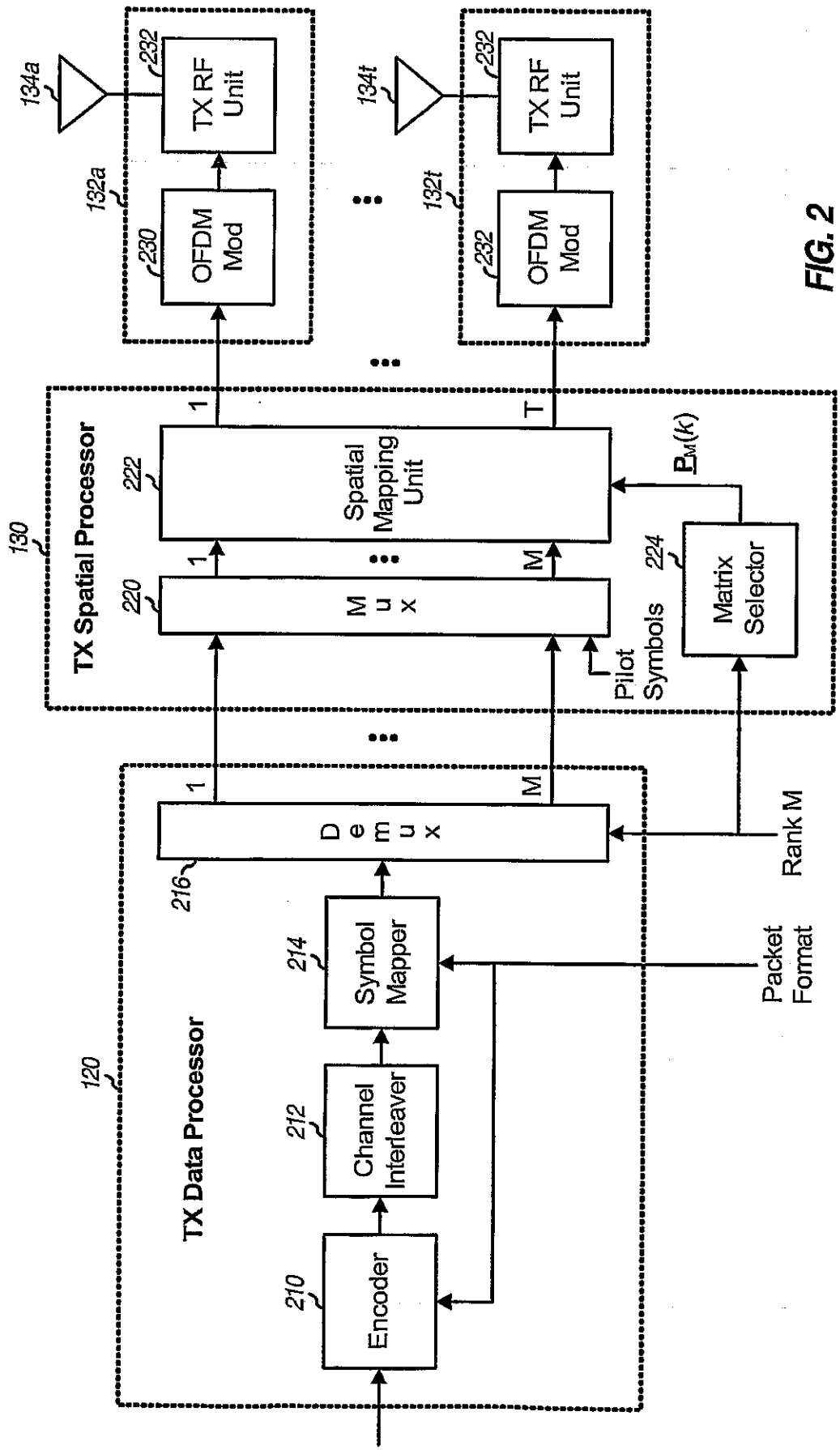

134a
232
TX RF Unit
132a
230
OFDM Mod
134t
232
TX RF Unit
132t
232
OFDM Mod
130
TX Spatial Processor
222
Spatial Mapping Unit
1
T
$\underline{P}_M(k)$
220
M u x
1
M
224
Matrix Selector
Pilot Symbols
216
D e m u x
1
M
Rank M
214
Symbol Mapper
Packet Format
120
TX Data Processor
212
Channel Interleaver
210
Encoder

FIG. 2

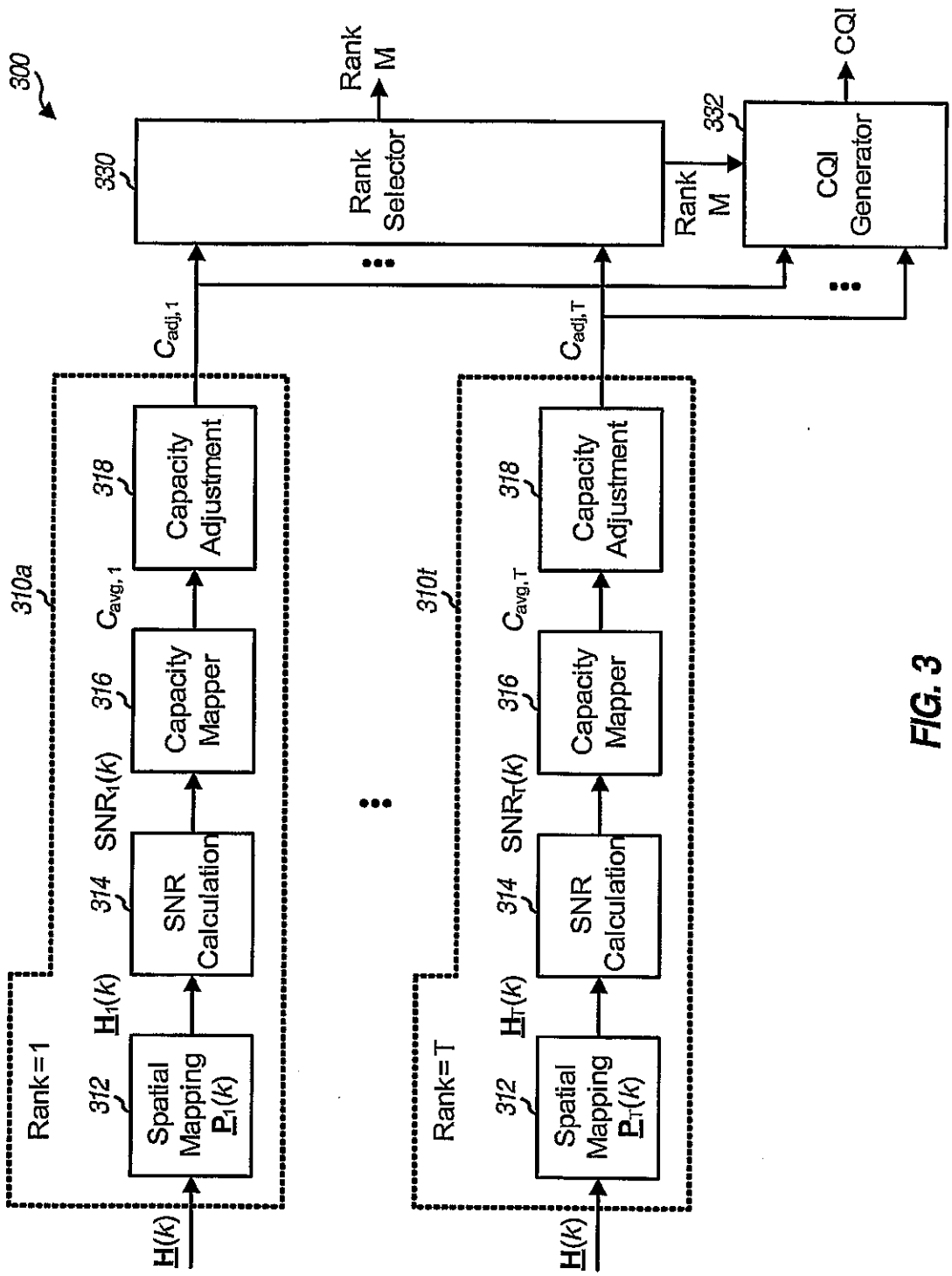

300
330
Rank Selector
Rank M
332
CQI Generator
CQI
Rank M
$C_{adj,1}$
$C_{adj,T}$
310a
Rank=1
312
Spatial Mapping $\underline{P}_1(k)$
$\underline{H}_1(k)$
314
SNR Calculation
$SNR_1(k)$
316
Capacity Mapper
$C_{avg,1}$
318
Capacity Adjustment
310t
Rank=T
312
Spatial Mapping $\underline{P}_T(k)$
$\underline{H}_T(k)$
314
SNR Calculation
$SNR_T(k)$
316
Capacity Mapper
$C_{avg,T}$
318
Capacity Adjustment
$\underline{H}(k)$
$\underline{H}(k)$

FIG. 3

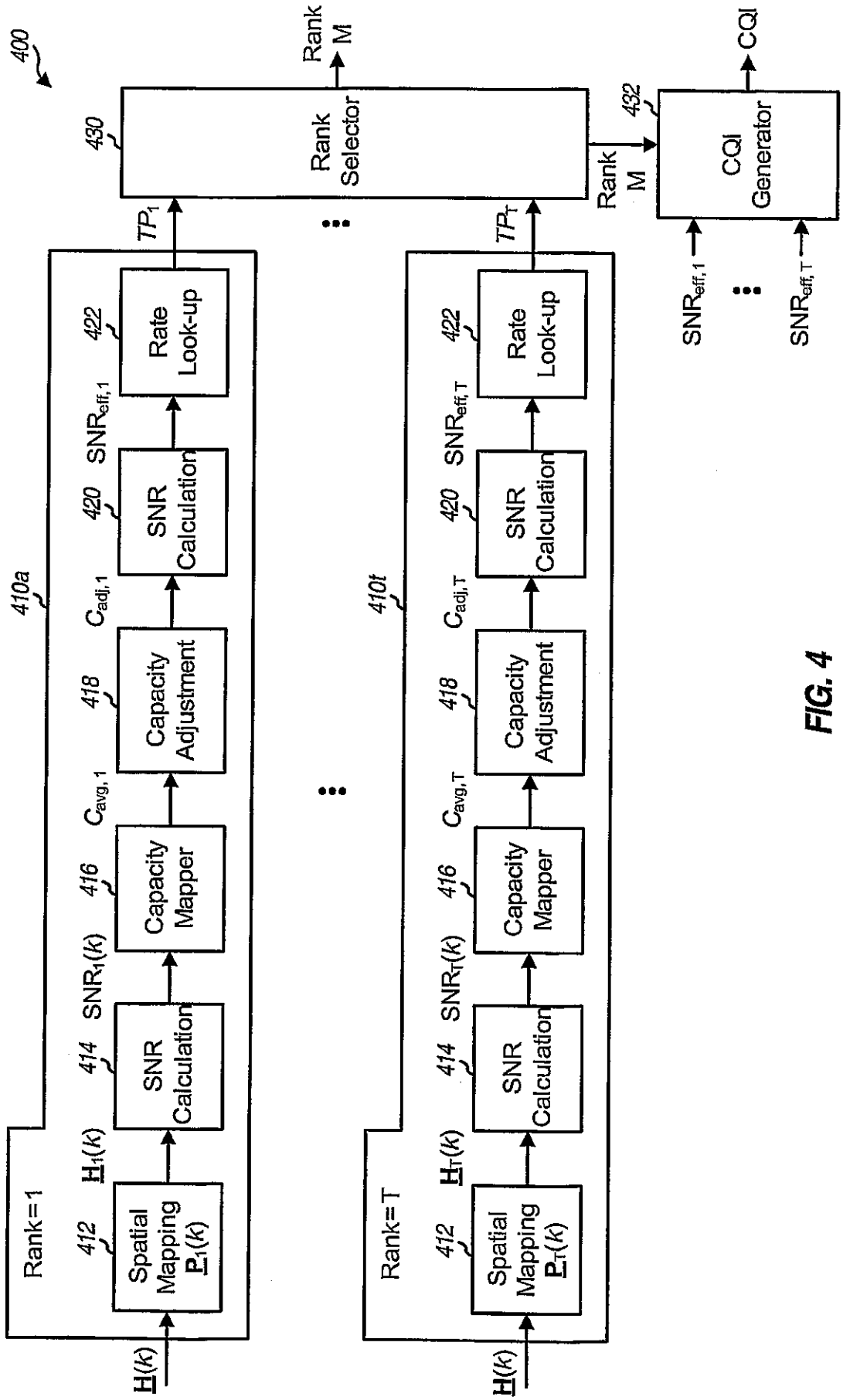

400
Rank=1
Rank=T
H(k)
412
Spatial Mapping
P1(k)
PT(k)
H1(k)
HT(k)
414
SNR Calculation
SNR1(k)
SNRT(k)
416
Capacity Mapper
Cavg,1
Cavg,T
418
Capacity Adjustment
Cadj,1
Cadj,T
420
SNR Calculation
SNReff,1
SNReff,T
422
Rate Look-up
TP1
TPT
410a
410t
430
Rank Selector
Rank M
432
CQI Generator
CQI
SNReff,1
SNReff,T

FIG. 4

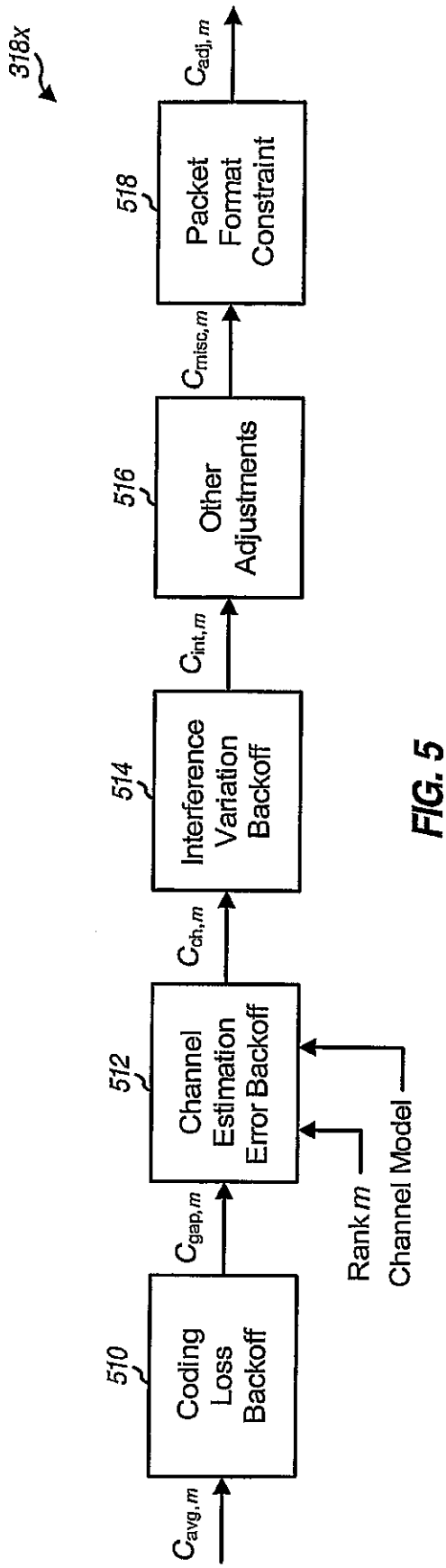

318x
510
Coding Loss Backoff
512
Channel Estimation Error Backoff
514
Interference Variation Backoff
516
Other Adjustments
518
Packet Format Constraint
$C_{avg,m}$
$C_{gap,m}$
$C_{ch,m}$
$C_{int,m}$
$C_{misc,m}$
$C_{adj,m}$
Rank $m$
Channel Model

FIG. 5

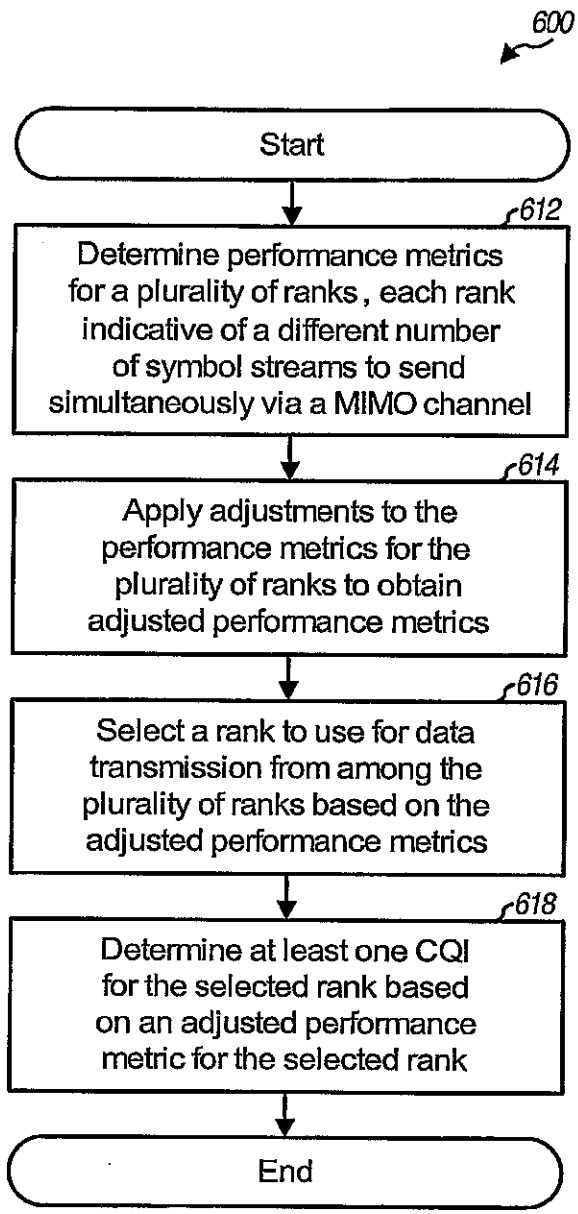

600
Start
612
Determine performance metrics for a plurality of ranks, each rank indicative of a different number of symbol streams to send simultaneously via a MIMO channel
614
Apply adjustments to the performance metrics for the plurality of ranks to obtain adjusted performance metrics
616
Select a rank to use for data transmission from among the plurality of ranks based on the adjusted performance metrics
618
Determine at least one CQI for the selected rank based on an adjusted performance metric for the selected rank
End

FIG. 6

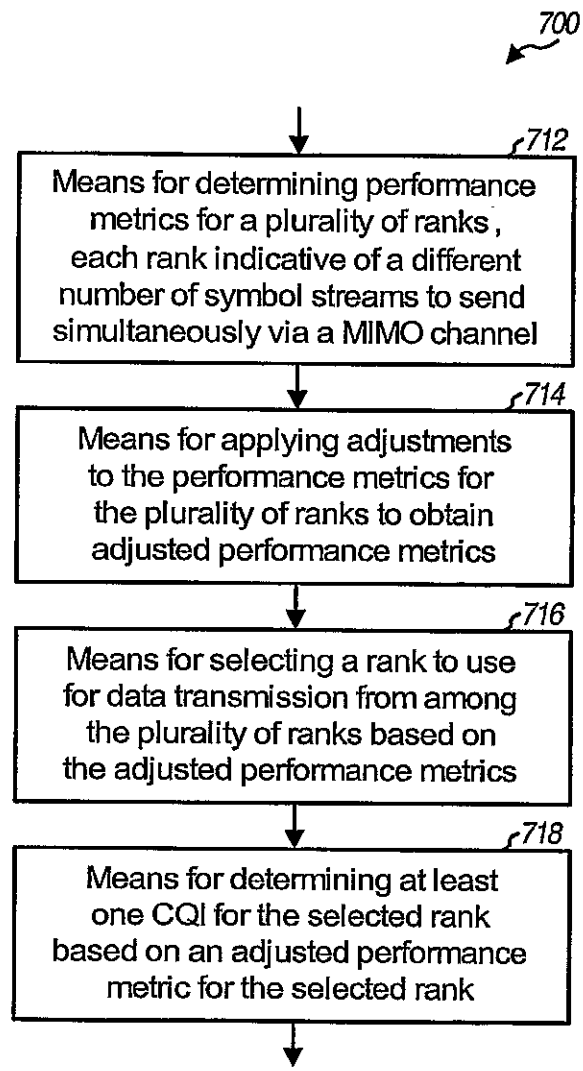

700
712
Means for determining performance metrics for a plurality of ranks, each rank indicative of a different number of symbol streams to send simultaneously via a MIMO channel
714
Means for applying adjustments to the performance metrics for the plurality of ranks to obtain adjusted performance metrics
716
Means for selecting a rank to use for data transmission from among the plurality of ranks based on the adjusted performance metrics
718
Means for determining at least one CQI for the selected rank based on an adjusted performance metric for the selected rank

FIG. 7