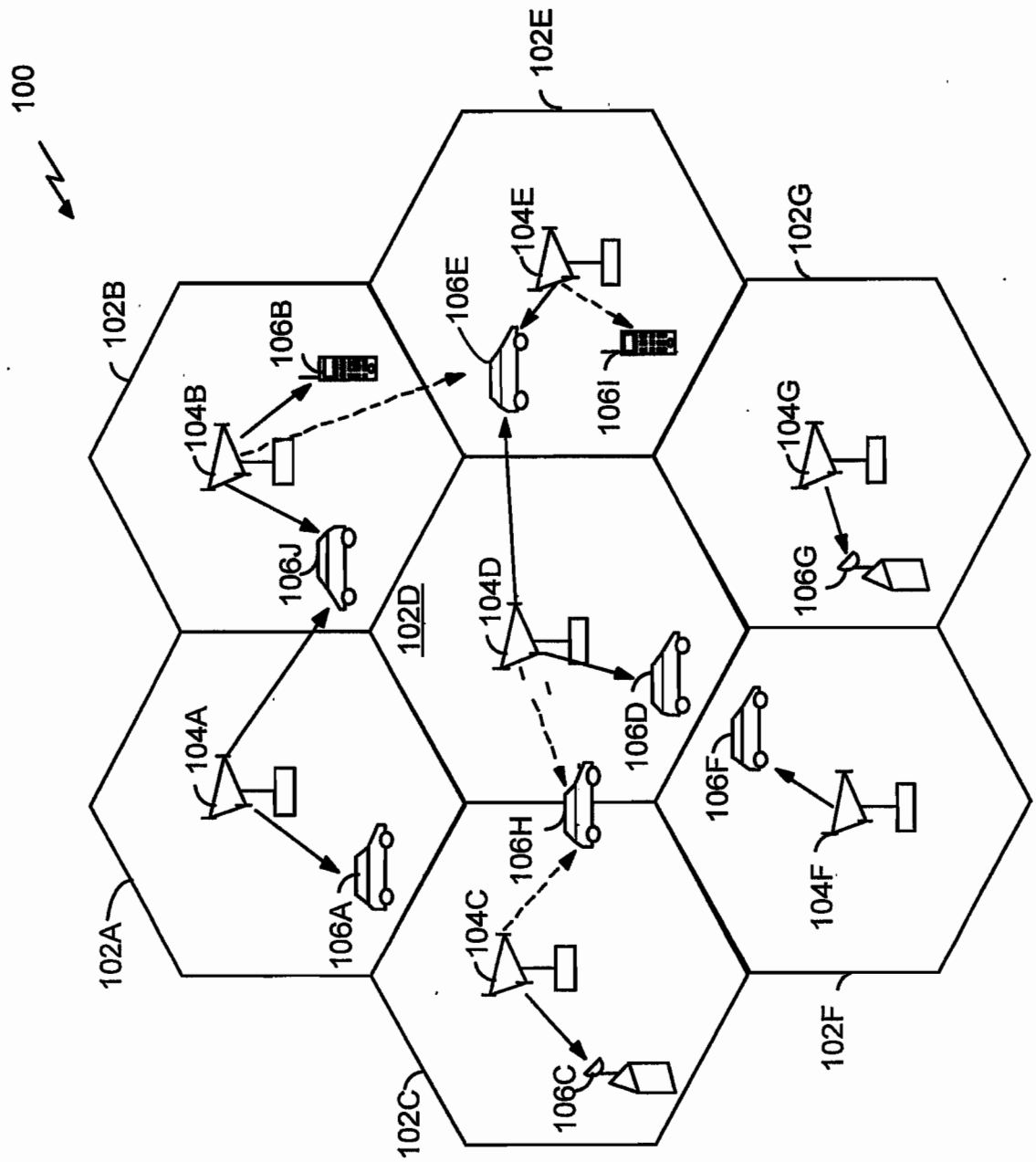
100
102A
102B
102C
102D
102E
102F
102G
104A
104B
104C
104D
104E
104F
104G
106A
106B
106C
106D
106E
106F
106G
106H
106I
106J

FIG. 1

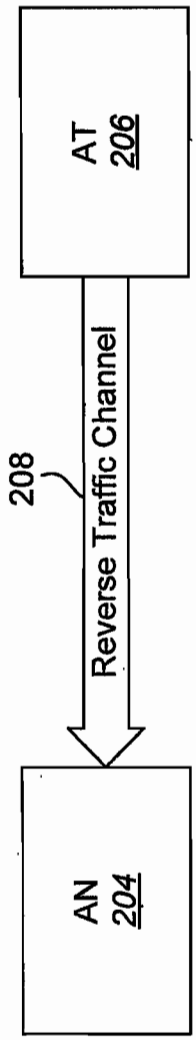
AT
206
208
Reverse Traffic Channel
AN
204

FIG. 2

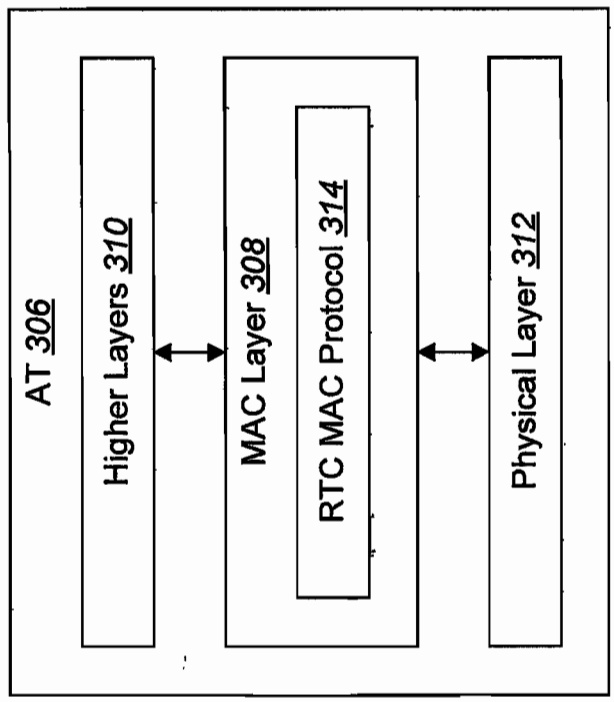
AT 306
Higher Layers 310
MAC Layer 308
RTC MAC Protocol 314
Physical Layer 312

FIG. 3

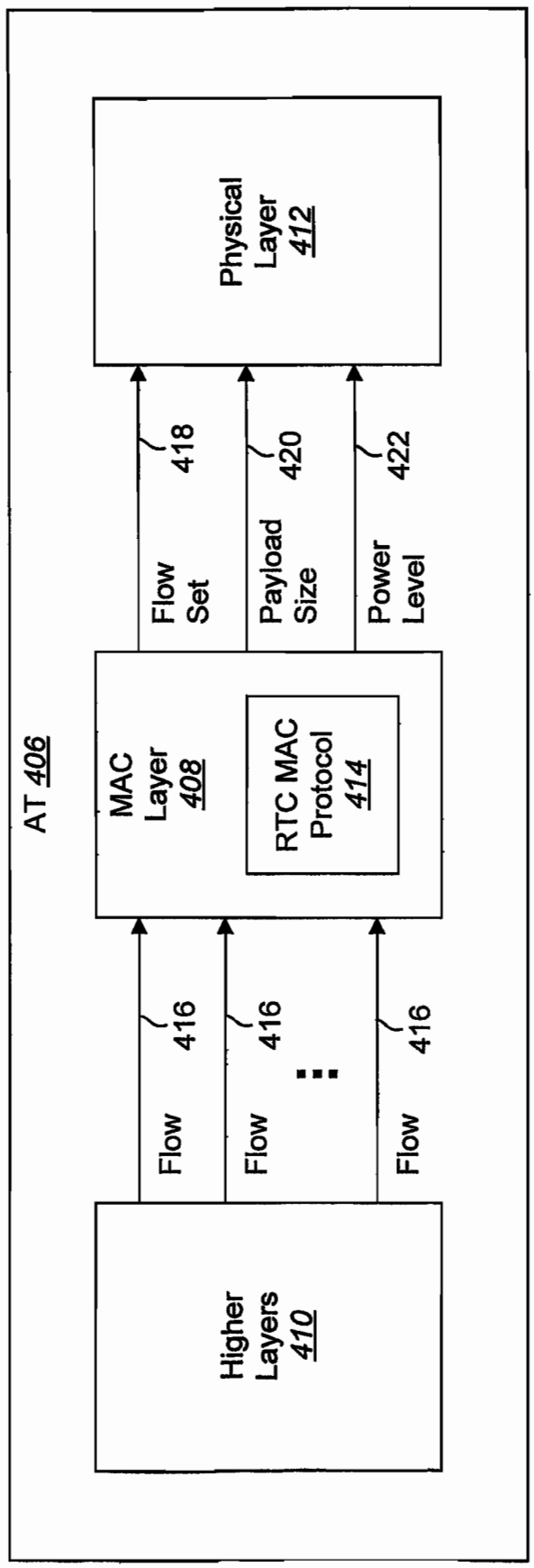
AT 406
Higher Layers 410
MAC Layer 408
RTC MAC Protocol 414
Physical Layer 412
Flow 416
Flow 416
Flow 416
Flow Set 418
Payload Size 420
Power Level 422

FIG. 4

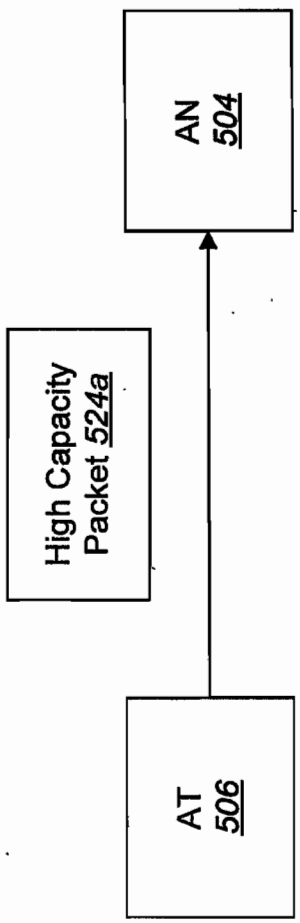
AN
504
High Capacity
Packet 524a
AT
506

FIG. 5A

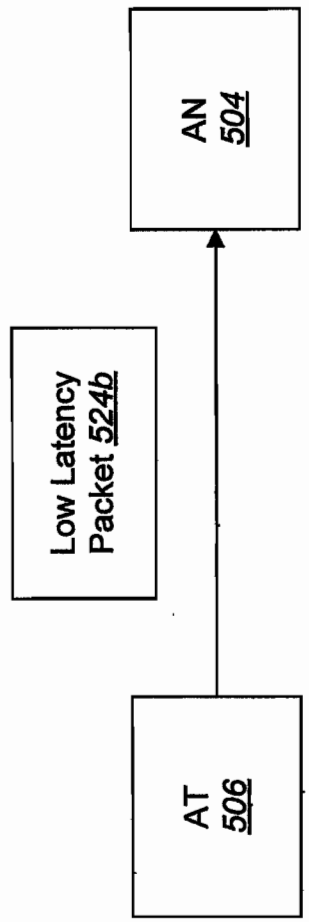
AN
504
Low Latency
Packet 524b
AT
506

FIG. 5B

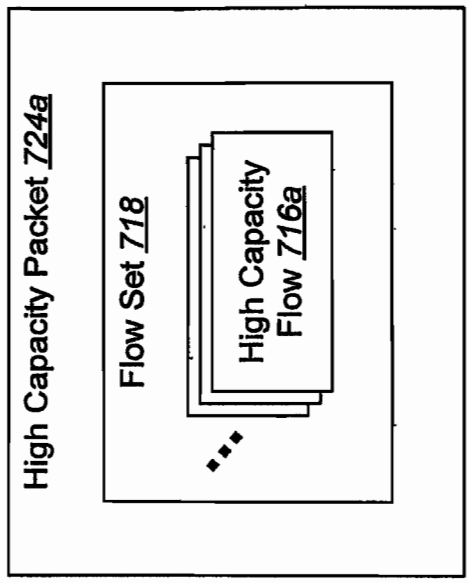
High Capacity Packet 724a
Flow Set 718
High Capacity Flow 716a

FIG. 7

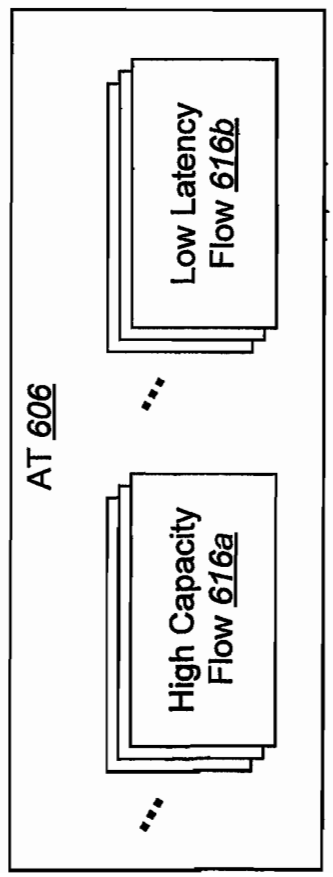
AT 606
High Capacity Flow 616a
Low Latency Flow 616b

FIG. 6

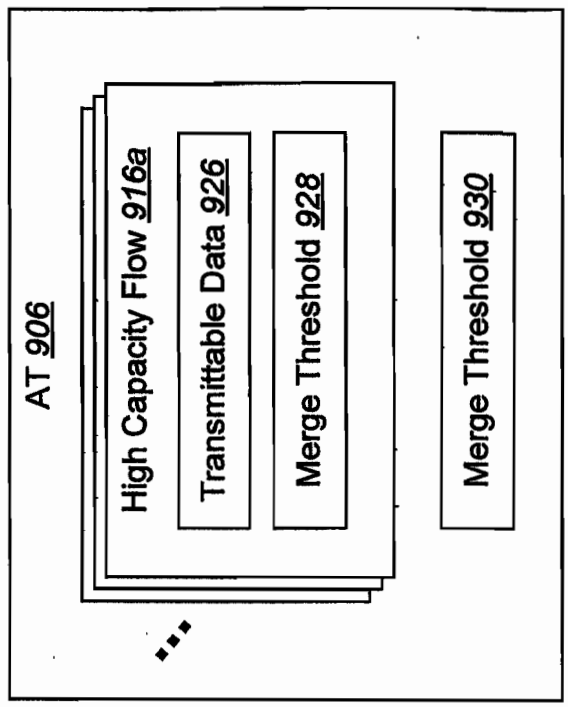
AT 906
High Capacity Flow 916a
Transmittable Data 926
Merge Threshold 928
Merge Threshold 930

FIG. 9

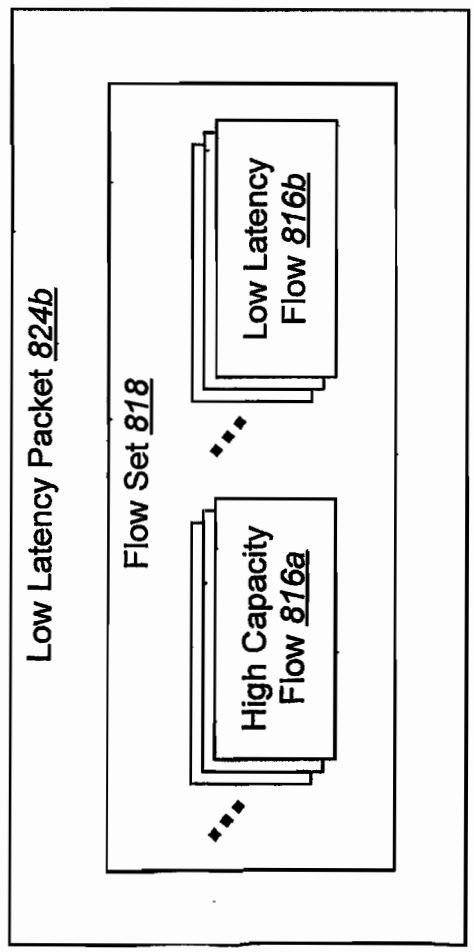
Low Latency Packet 824b
Flow Set 818
High Capacity Flow 816a
Low Latency Flow 816b

FIG. 8

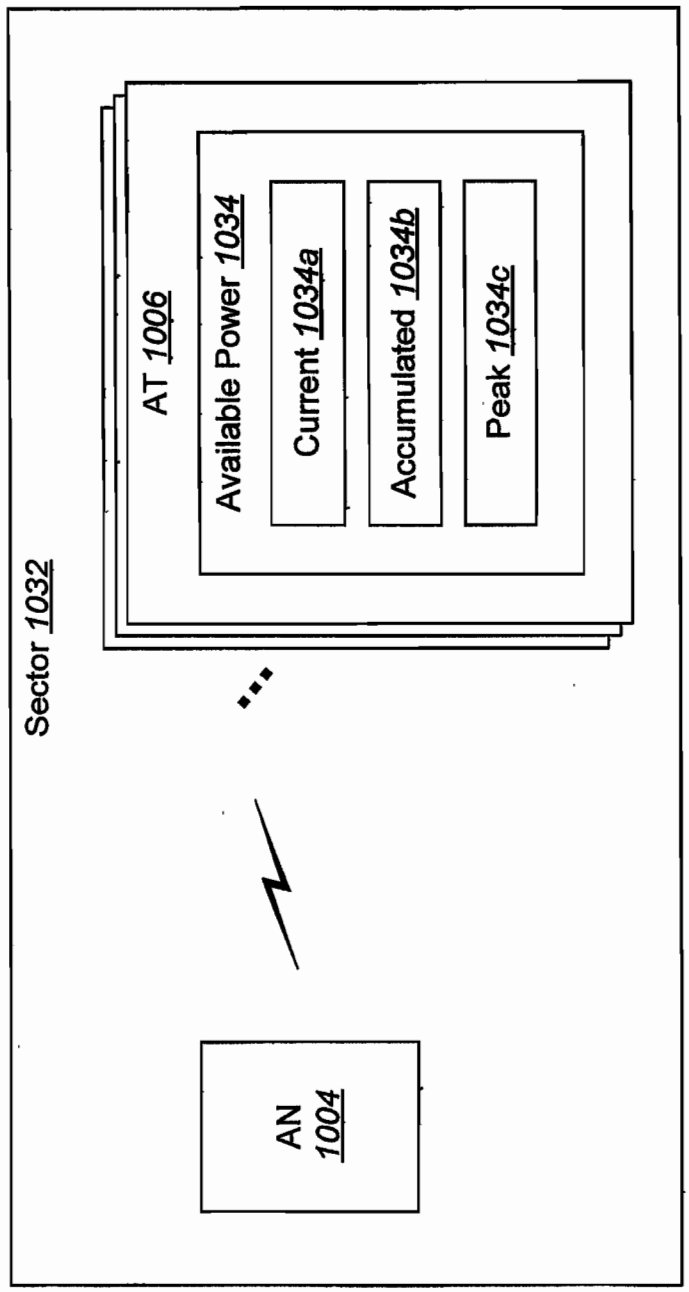
Sector 1032
AT 1006
Available Power 1034
Current 1034a
Accumulated 1034b
Peak 1034c
AN 1004

FIG. 10

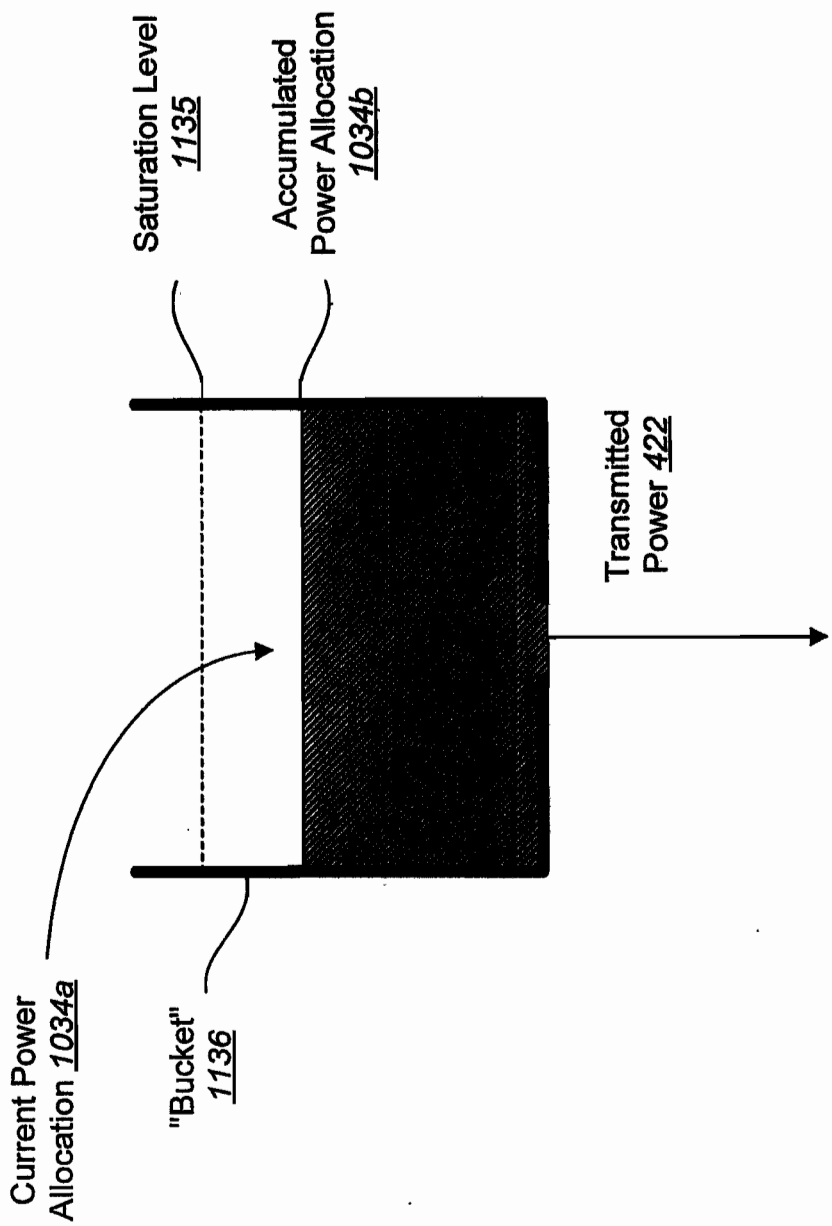
Saturation Level
1135
Accumulated
Power Allocation
1034b
Transmitted
Power 422
Current Power
Allocation 1034a
"Bucket"
1136

FIG. 11

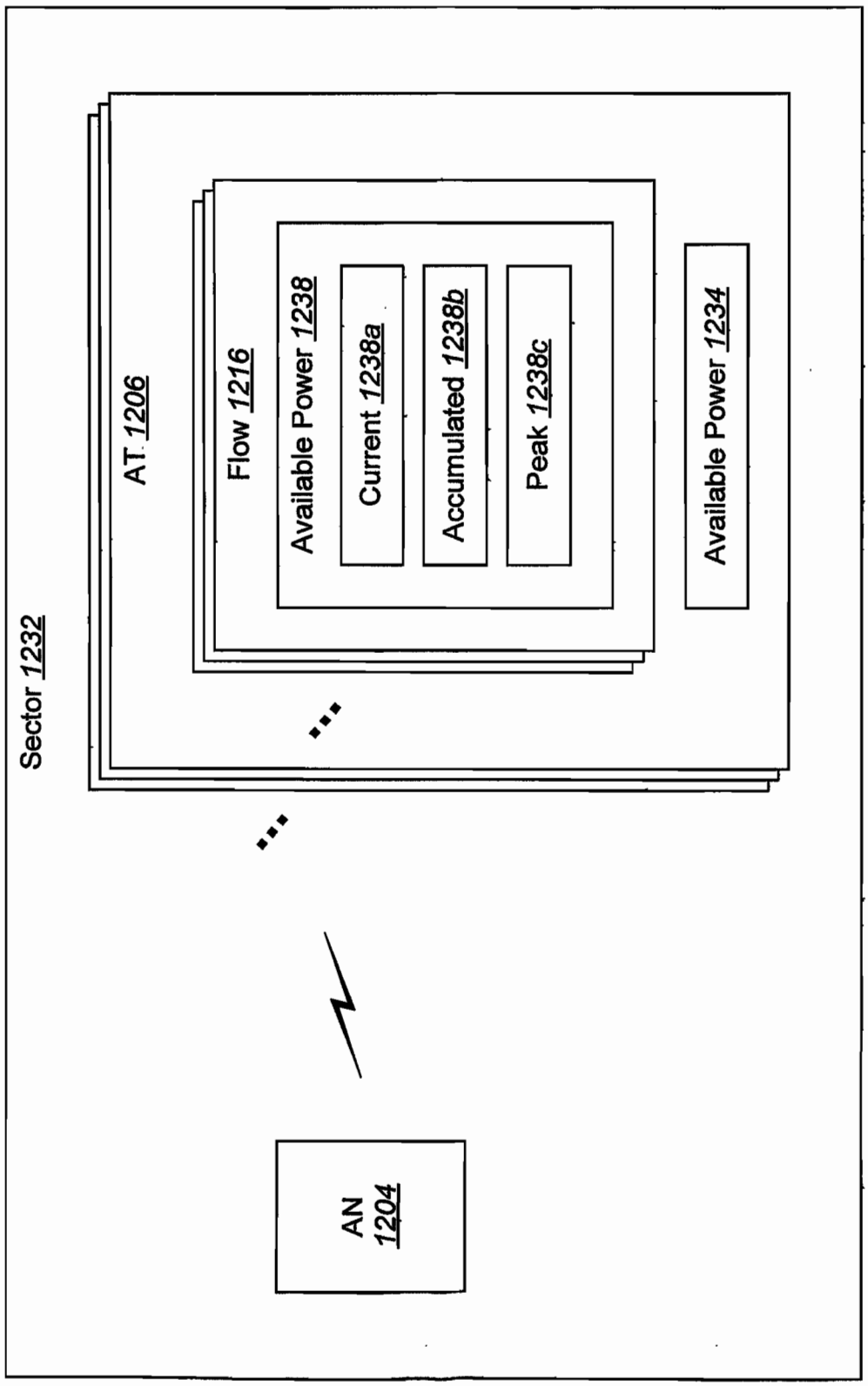
Sector 1232
AT 1206
Flow 1216
Available Power 1238
Current 1238a
Accumulated 1238b
Peak 1238c
Available Power 1234
AN 1204

FIG. 12

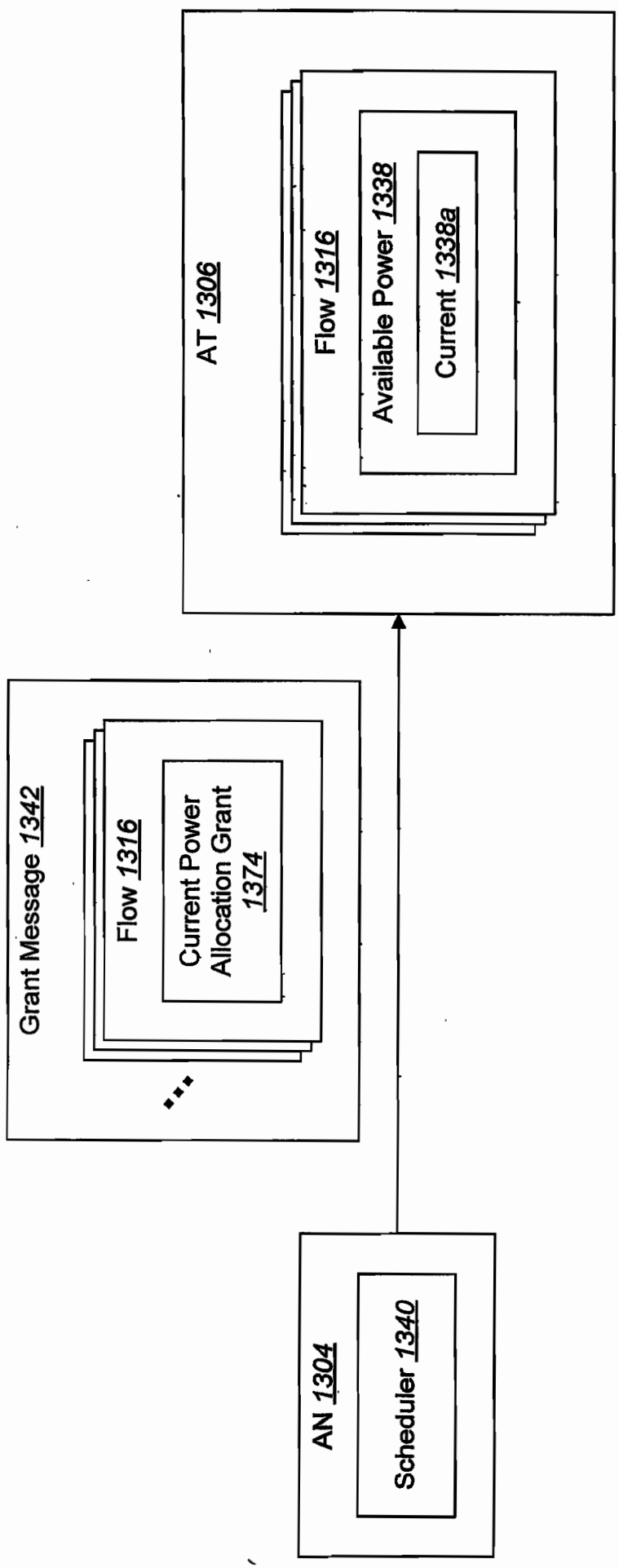
AT 1306
Flow 1316
Available Power 1338
Current 1338a
Grant Message 1342
Flow 1316
Current Power Allocation Grant 1374
AN 1304
Scheduler 1340

FIG. 13

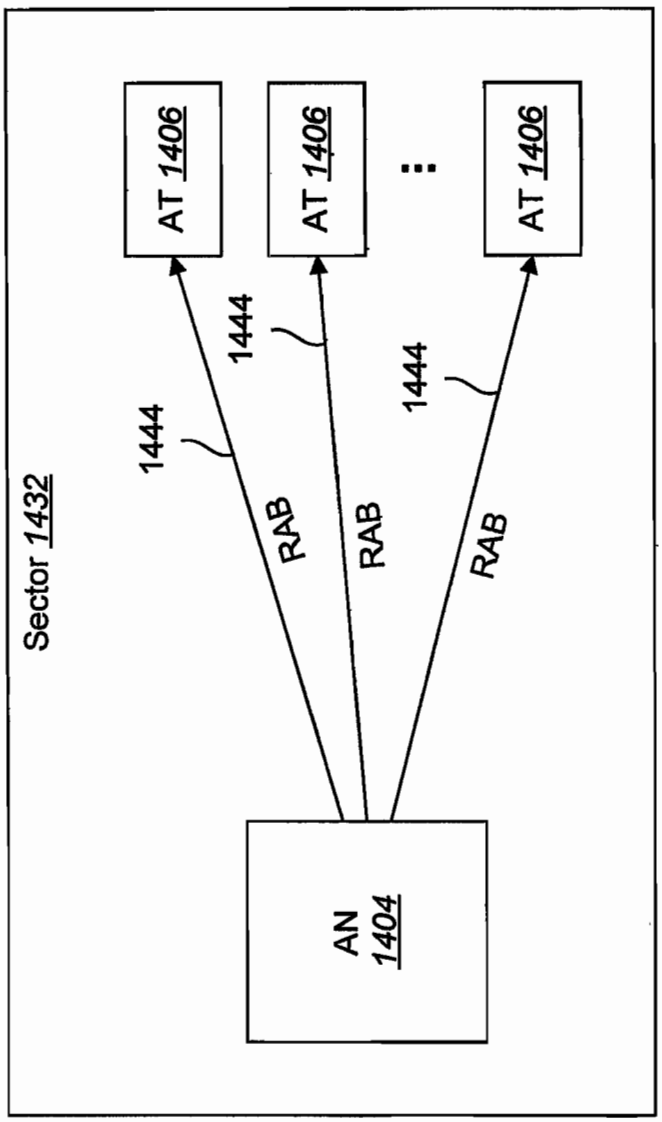
Sector 1432
AT 1406
AT 1406
AT 1406
1444
1444
1444
RAB
RAB
RAB
AN 1404

FIG. 14

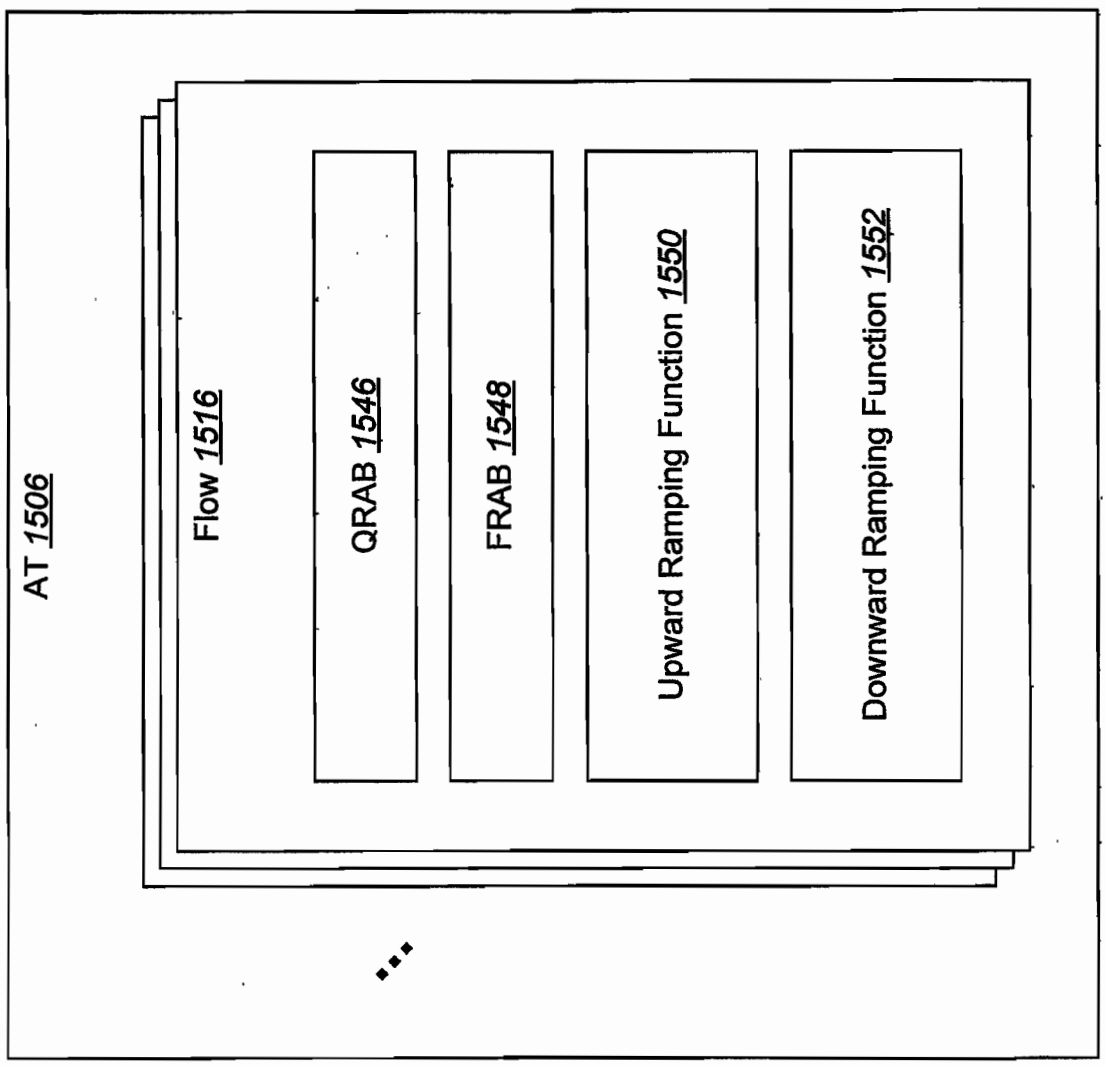
AT 1506
Flow 1516
QRAB 1546
FRAB 1548
Upward Ramping Function 1550
Downward Ramping Function 1552

FIG. 15

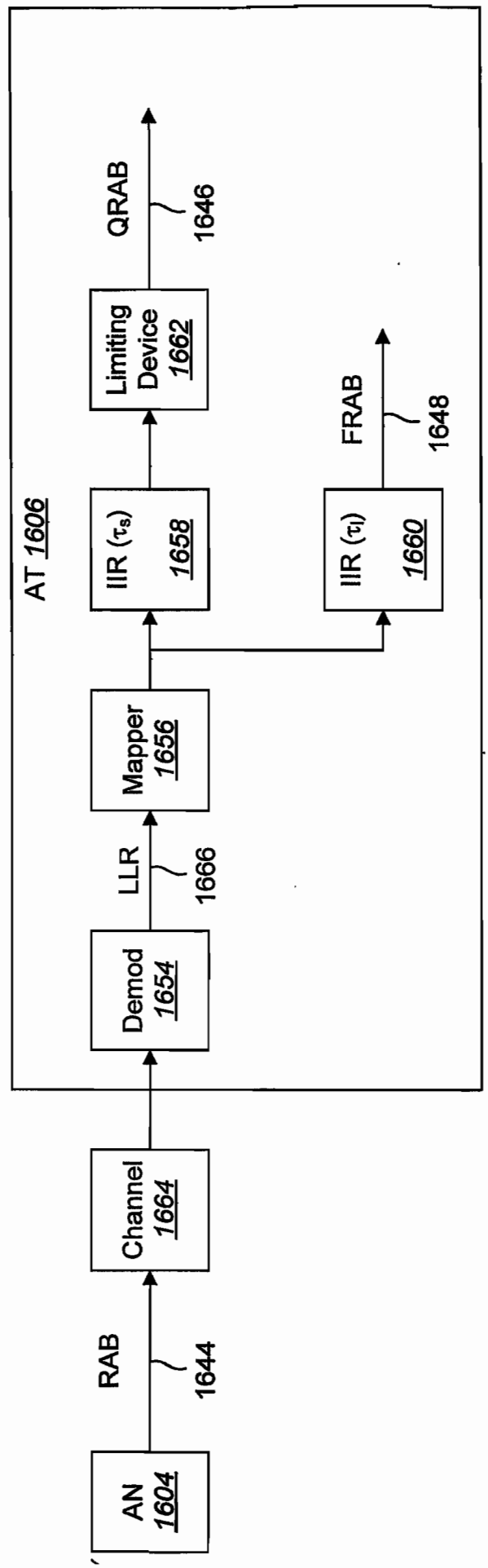
AN 1604
RAB
1644
Channel 1664
AT 1606
Demod 1654
LLR
1666
Mapper 1656
IIR (τ_s) 1658
IIR (τ_l) 1660
Limiting Device 1662
QRAB
1646
FRAB
1648

FIG. 16

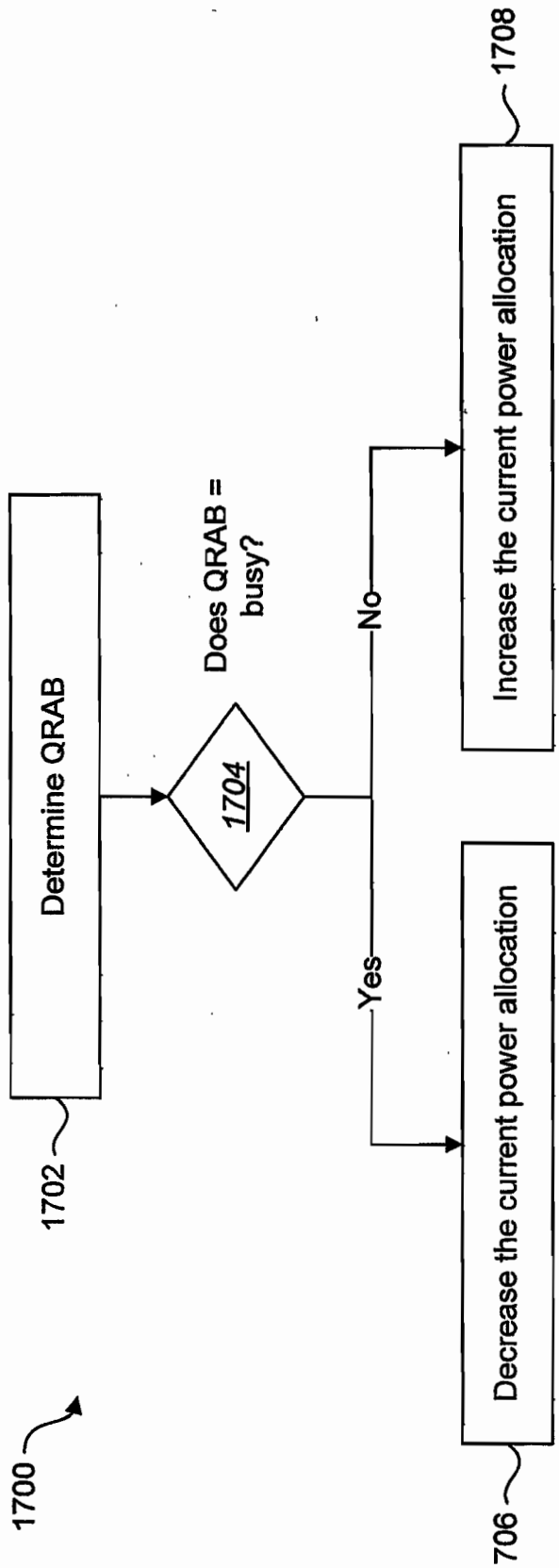
1700
Determine QRAB
1702
Does QRAB = busy?
1704
No
Yes
Increase the current power allocation
1708
Decrease the current power allocation
1706

FIG. 17

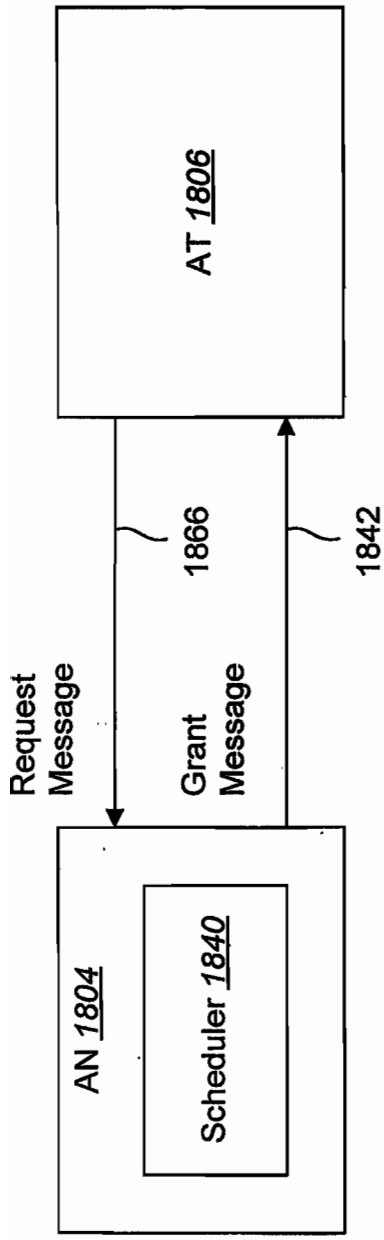
AT 1806
1866
1842
Request Message
Grant Message
AN 1804
Scheduler 1840

FIG. 18

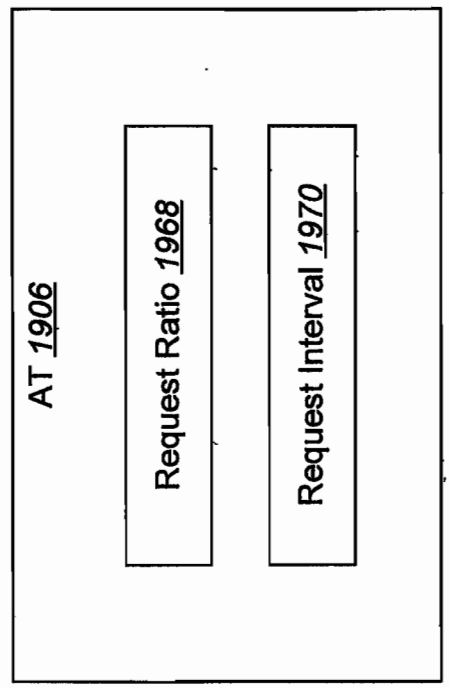
AT 1906
Request Ratio 1968
Request Interval 1970

FIG. 19

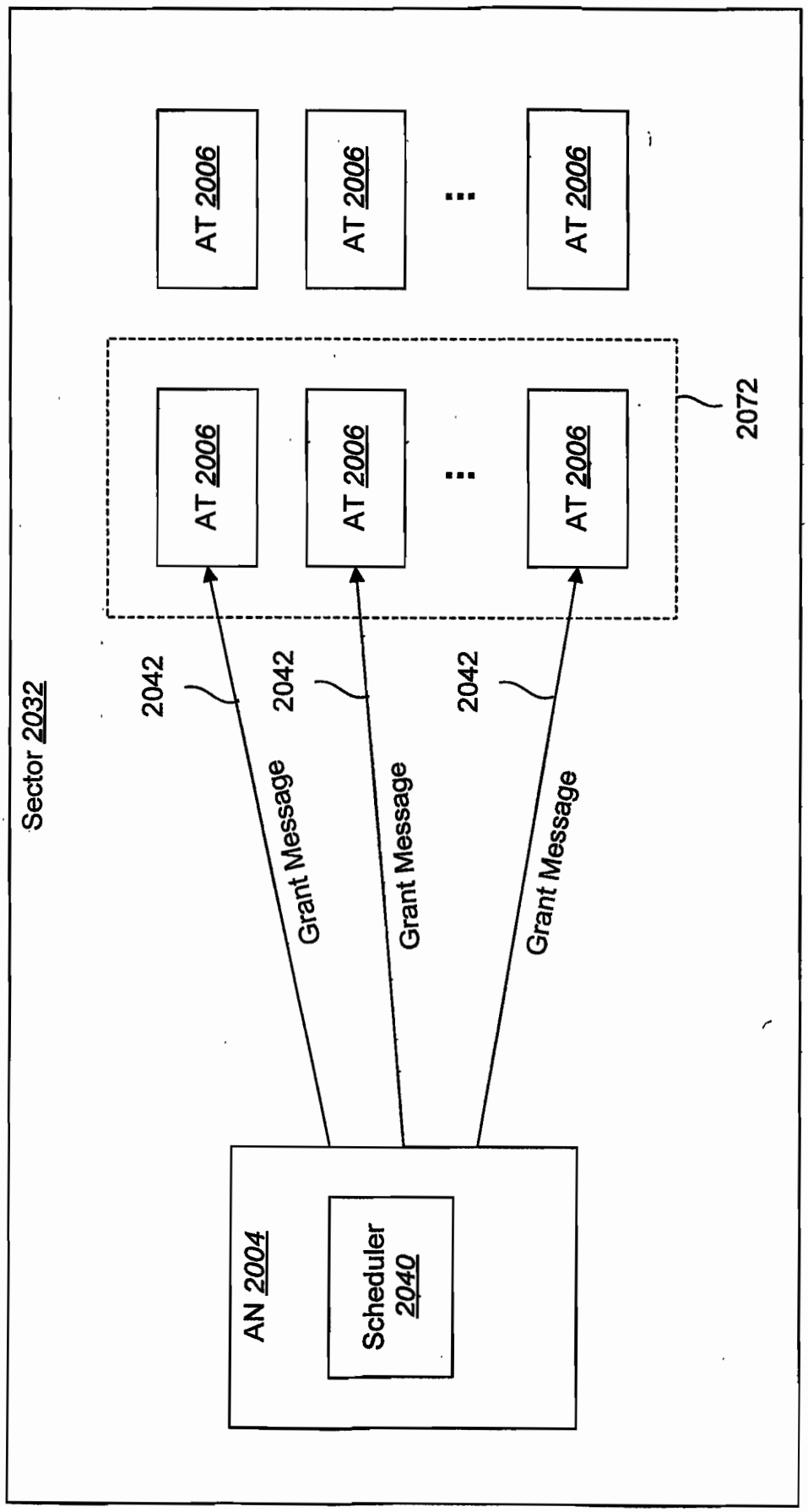
Sector 2032
AT 2006
AT 2006
AT 2006
AT 2006
AT 2006
AT 2006
2072
2042
2042
2042
Grant Message
Grant Message
Grant Message
AN 2004
Scheduler 2040

FIG. 20

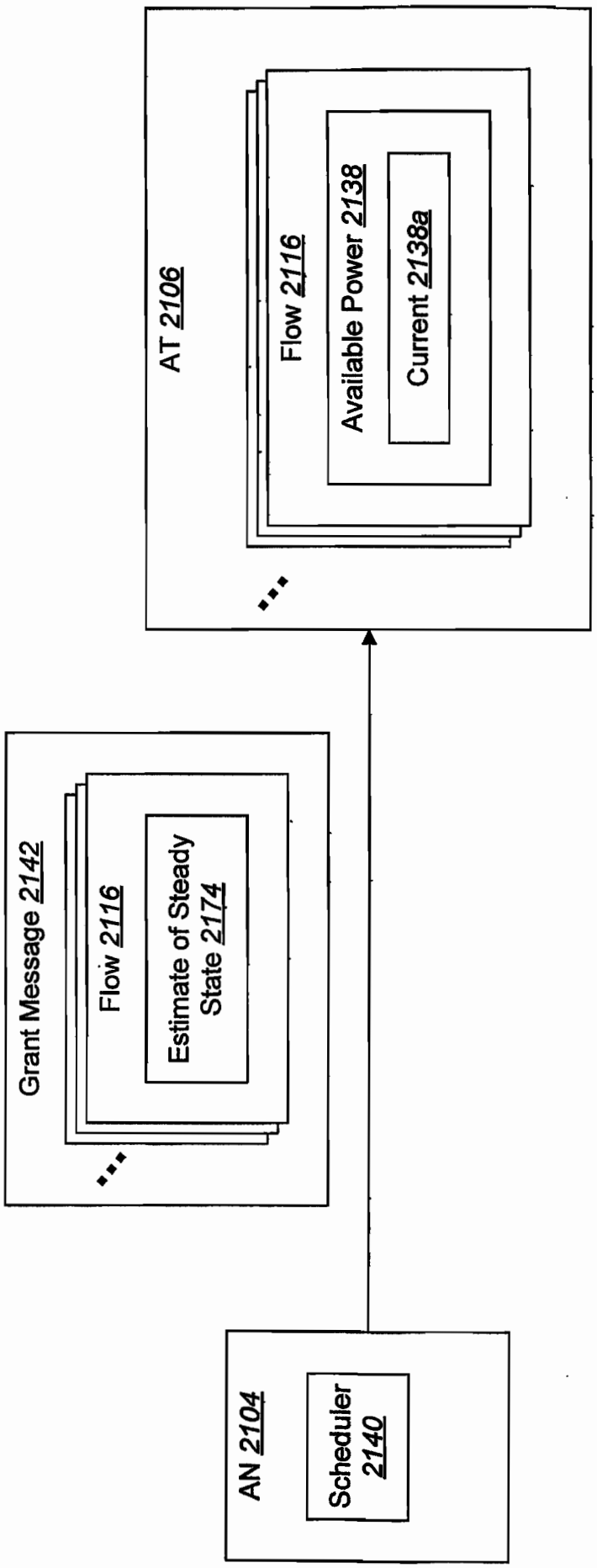
AT 2106
Flow 2116
Available Power 2138
Current 2138a
Grant Message 2142
Flow 2116
Estimate of Steady State 2174
AN 2104
Scheduler 2140

FIG. 21

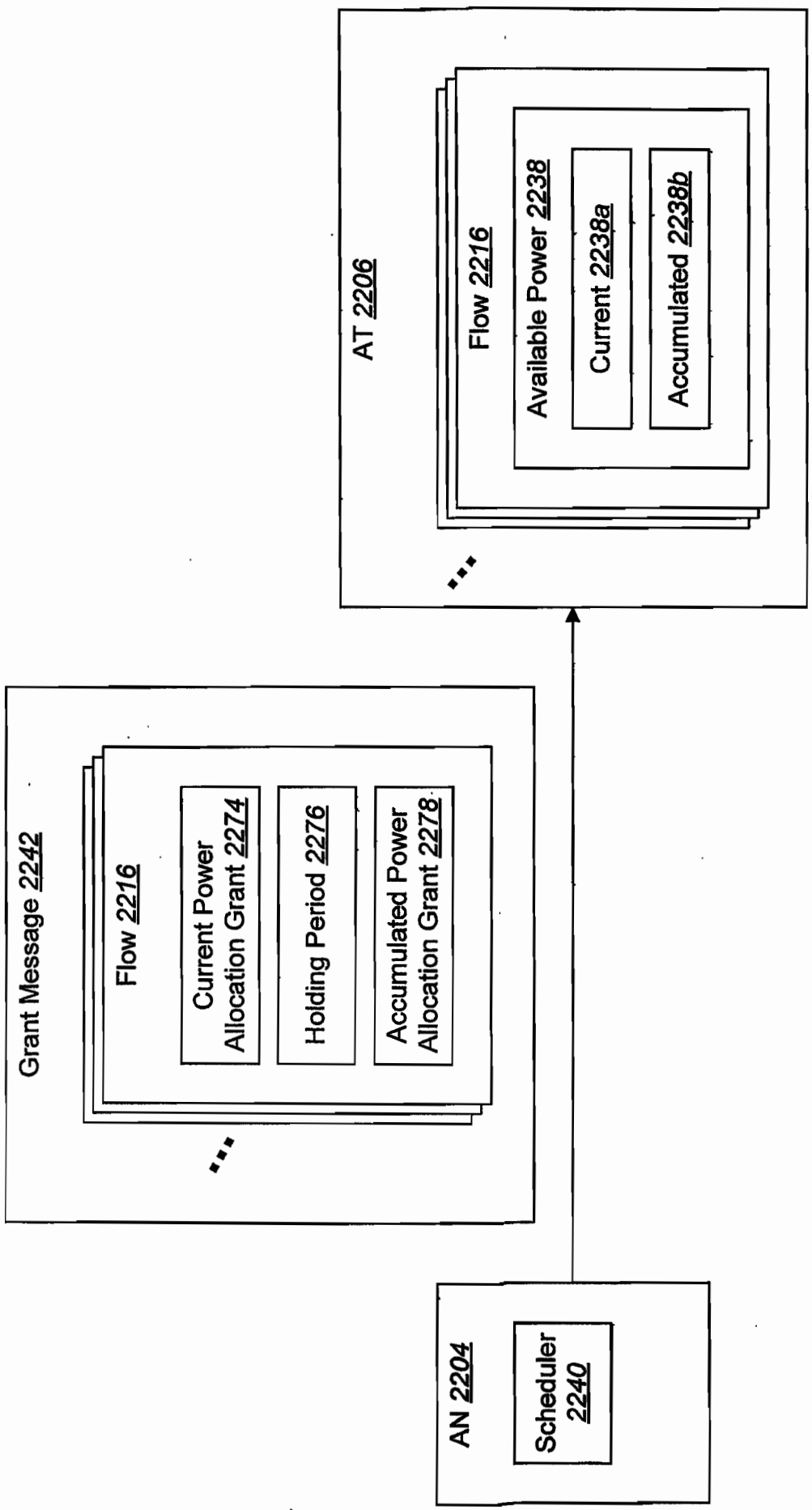
AN 2204
Scheduler 2240
Grant Message 2242
Flow 2216
Current Power Allocation Grant 2274
Holding Period 2276
Accumulated Power Allocation Grant 2278
AT 2206
Flow 2216
Available Power 2238
Current 2238a
Accumulated 2238b

FIG. 22

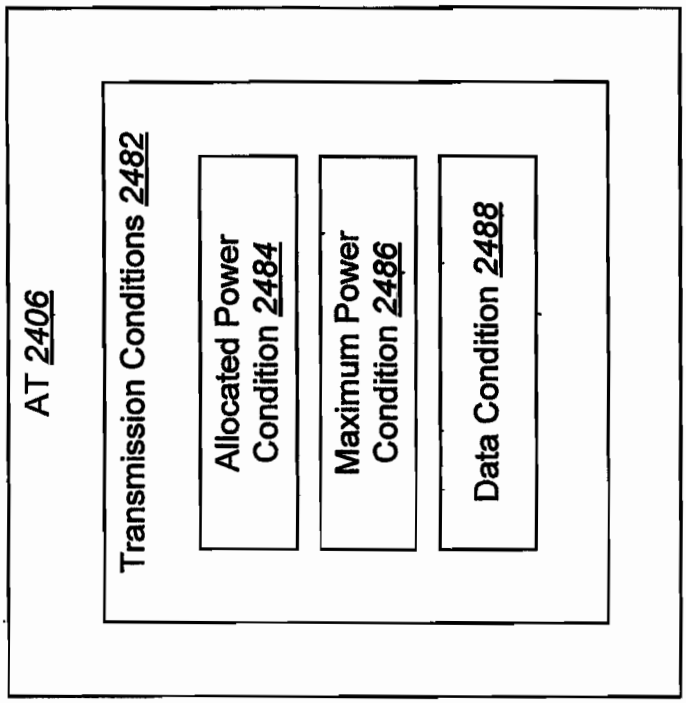
AT 2406
Transmission Conditions 2482
Allocated Power Condition 2484
Maximum Power Condition 2486
Data Condition 2488

FIG. 24

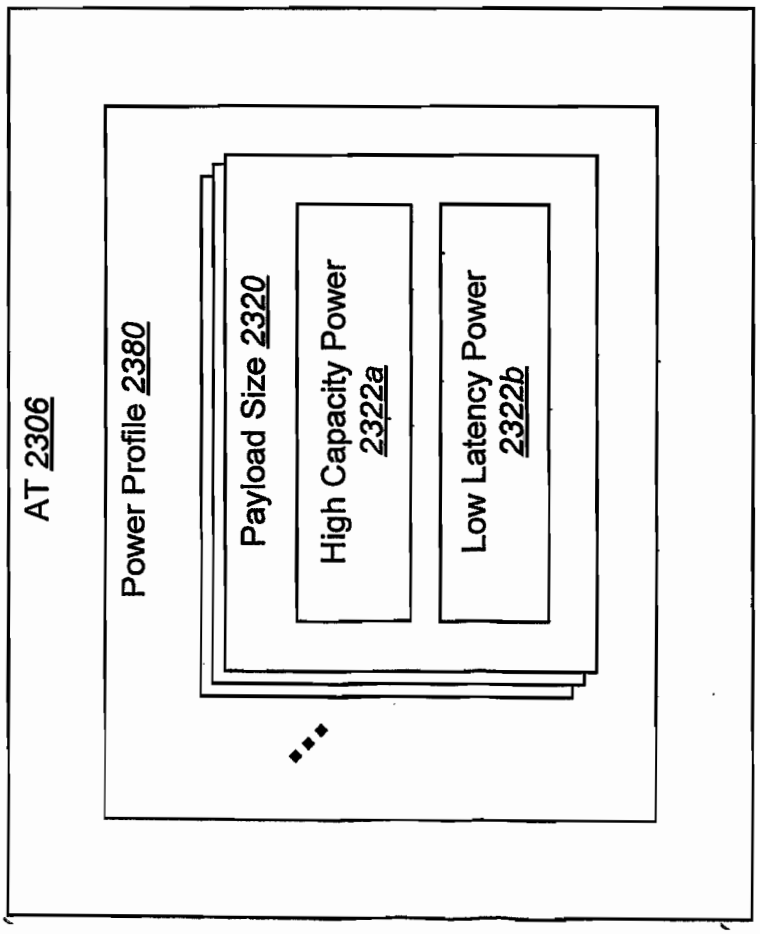
AT 2306
Power Profile 2380
Payload Size 2320
High Capacity Power 2322a
Low Latency Power 2322b

FIG. 23

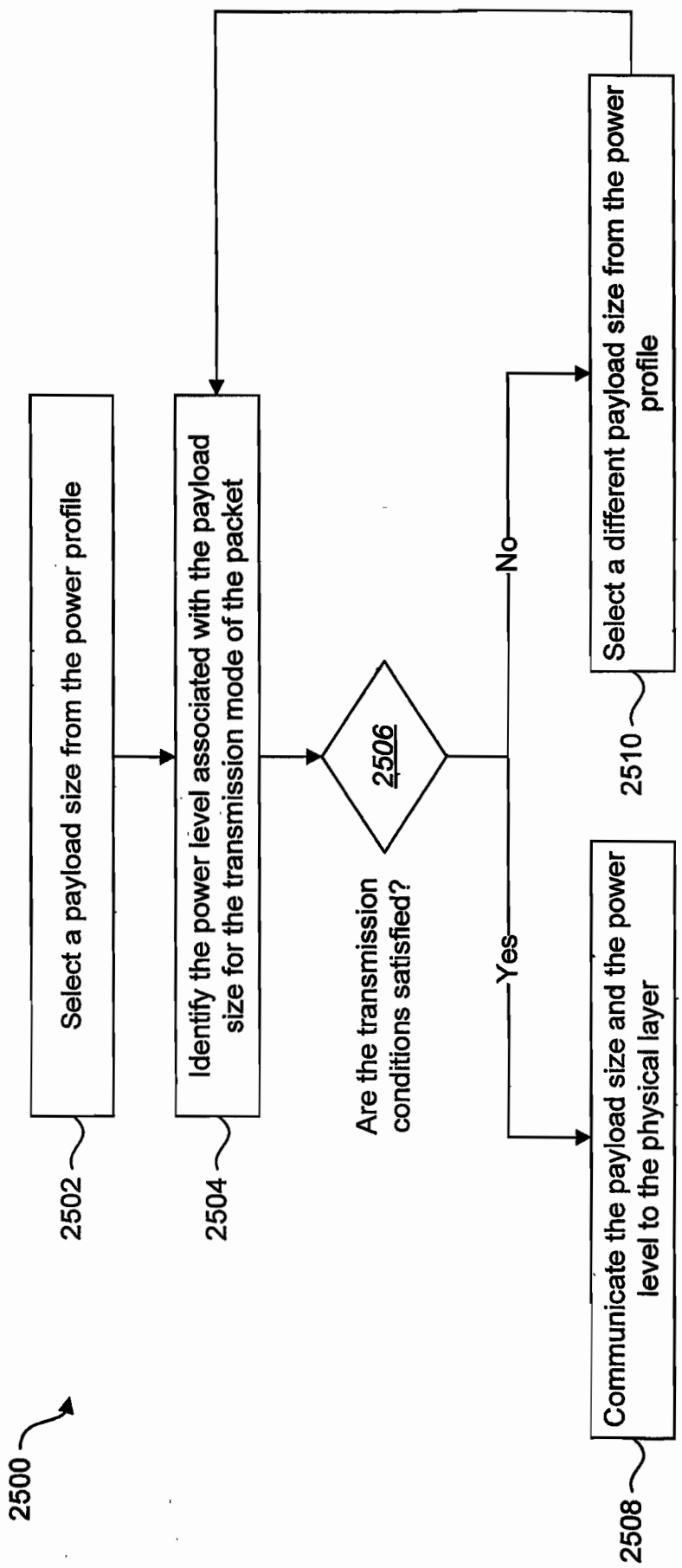
2500
Select a payload size from the power profile
2502
Identify the power level associated with the payload size for the transmission mode of the packet
2504
2506
Are the transmission conditions satisfied?
No
Yes
Select a different payload size from the power profile
2510
Communicate the payload size and the power level to the physical layer
2508

FIG. 25

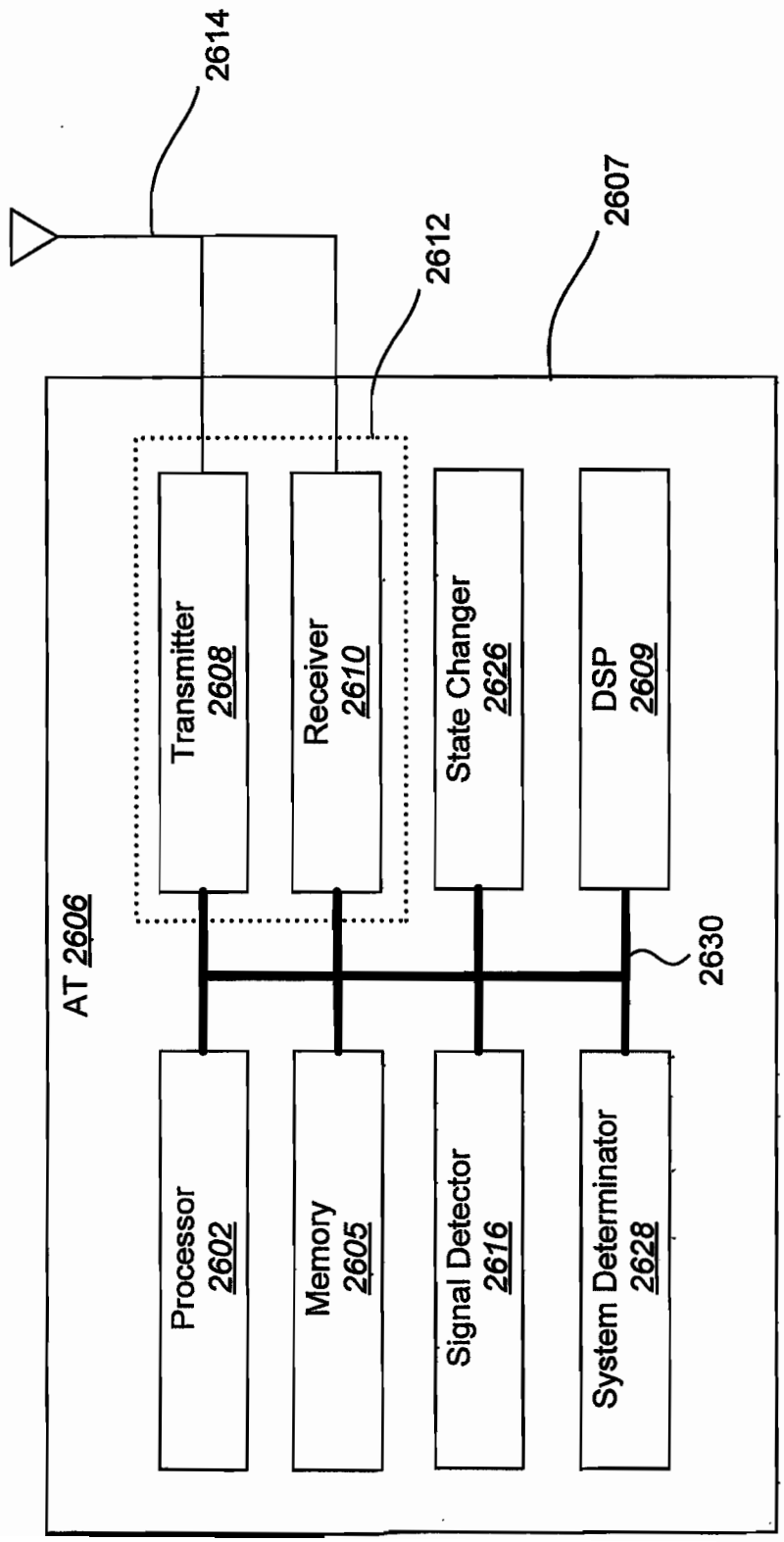
2614
2612
2607
AT 2606
Transmitter 2608
Receiver 2610
State Changer 2626
DSP 2609
2630
Processor 2602
Memory 2605
Signal Detector 2616
System Determinator 2628

FIG. 26

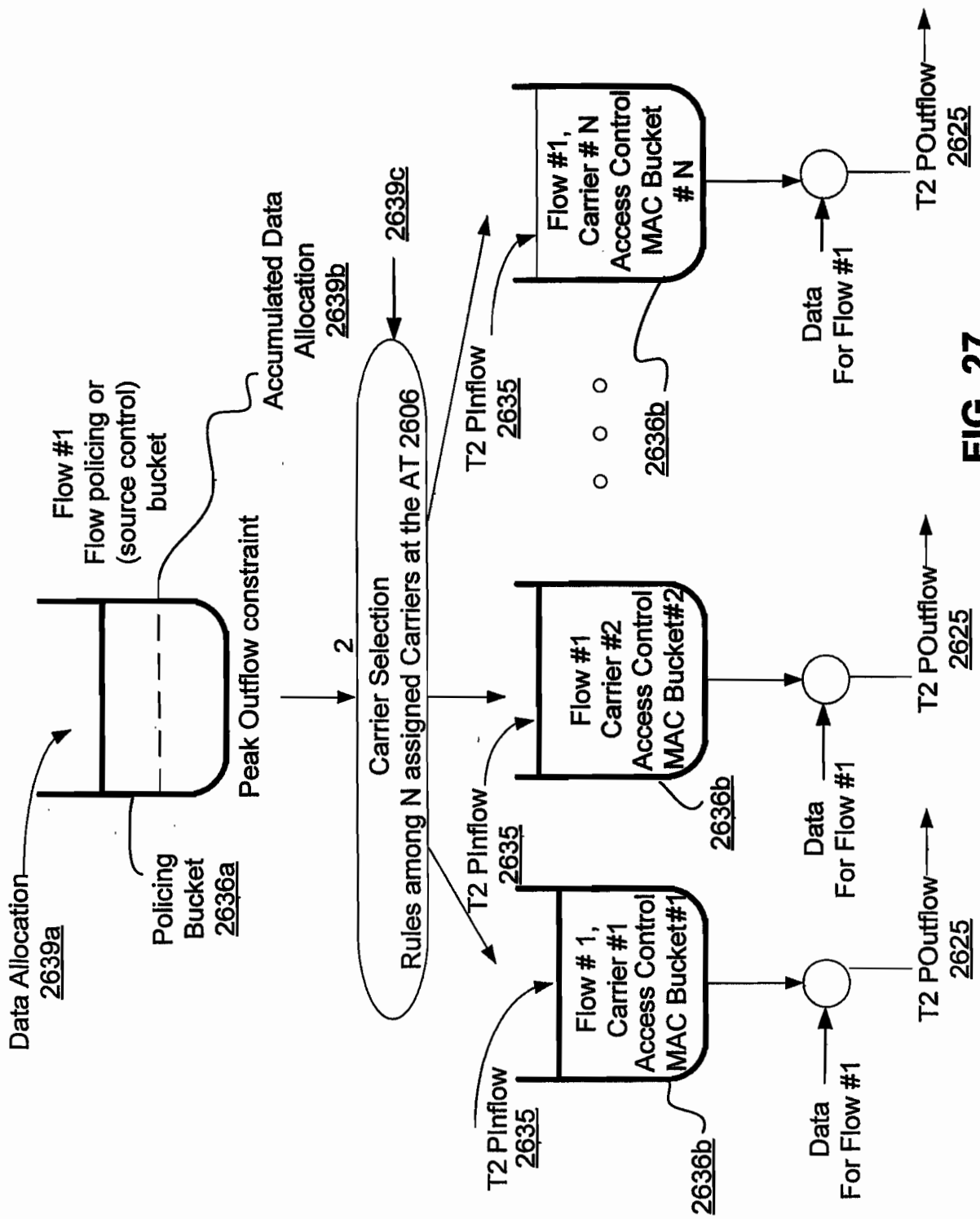
Data Allocation
2639a
Flow #1
Flow policing or
(source control)
bucket
Policing
Bucket
2636a
Peak Outflow constraint
Accumulated Data
Allocation
2639b
2639c
2
Carrier Selection
Rules among N assigned Carriers at the AT 2606
T2 PInflow
2635
Flow # 1,
Carrier #1
Access Control
MAC Bucket#1
2636b
Flow #1
Carrier #2
Access Control
MAC Bucket#2
Flow #1,
Carrier # N
Access Control
MAC Bucket
N
Data
For Flow #1
T2 POutflow
2625

FIG. 27

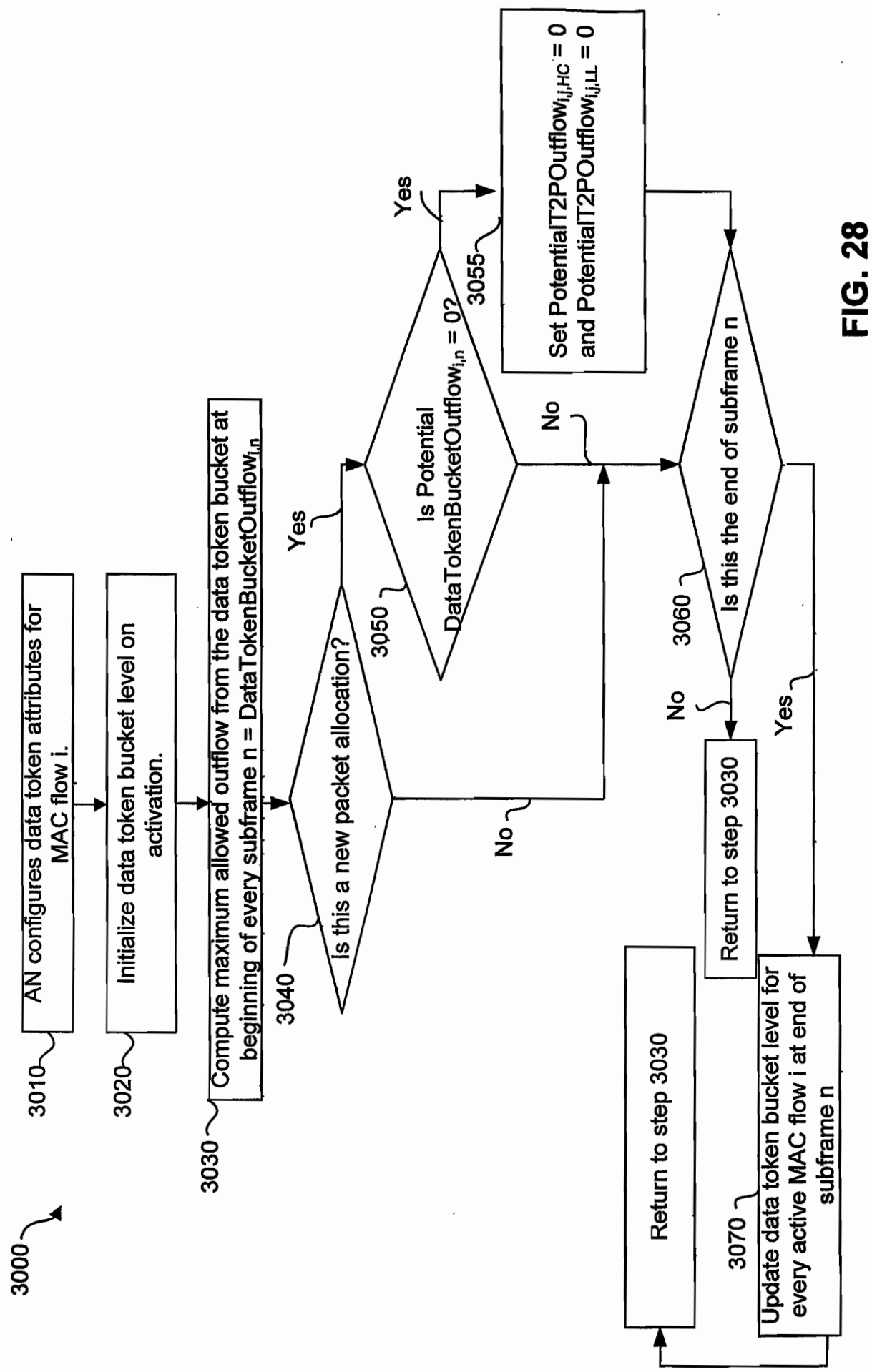
3000
3010
AN configures data token attributes for MAC flow i.
3020
Initialize data token bucket level on activation.
3030
Compute maximum allowed outflow from the data token bucket at beginning of every subframe n = DataTokenBucketOutflow$_{i,n}$
3040
Is this a new packet allocation?
Yes
No
3050
Is Potential DataTokenBucketOutflow$_{i,n}$ = 0?
Yes
No
3055
Set PotentialT2POutflow$_{i,j,HC}$ = 0 and PotentialT2POutflow$_{i,j,LL}$ = 0
3060
Is this the end of subframe n
No
Yes
Return to step 3030
Return to step 3030
3070
Update data token bucket level for every active MAC flow i at end of subframe n

FIG. 28

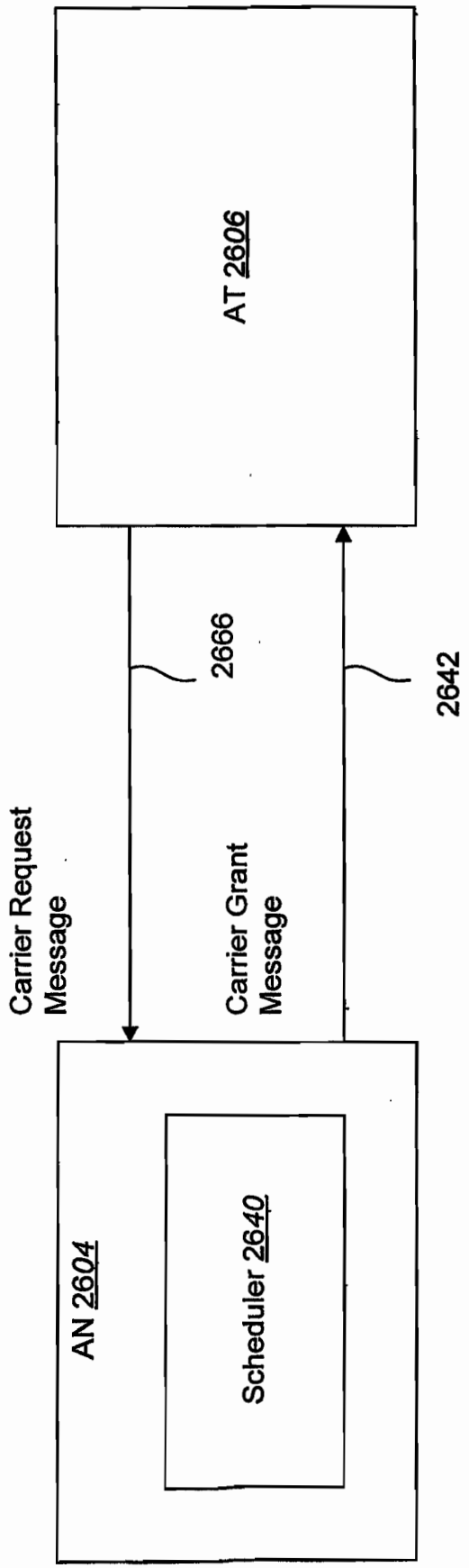
AT 2606
2666
2642
Carrier Request Message
Carrier Grant Message
AN 2604
Scheduler 2640

FIG. 29

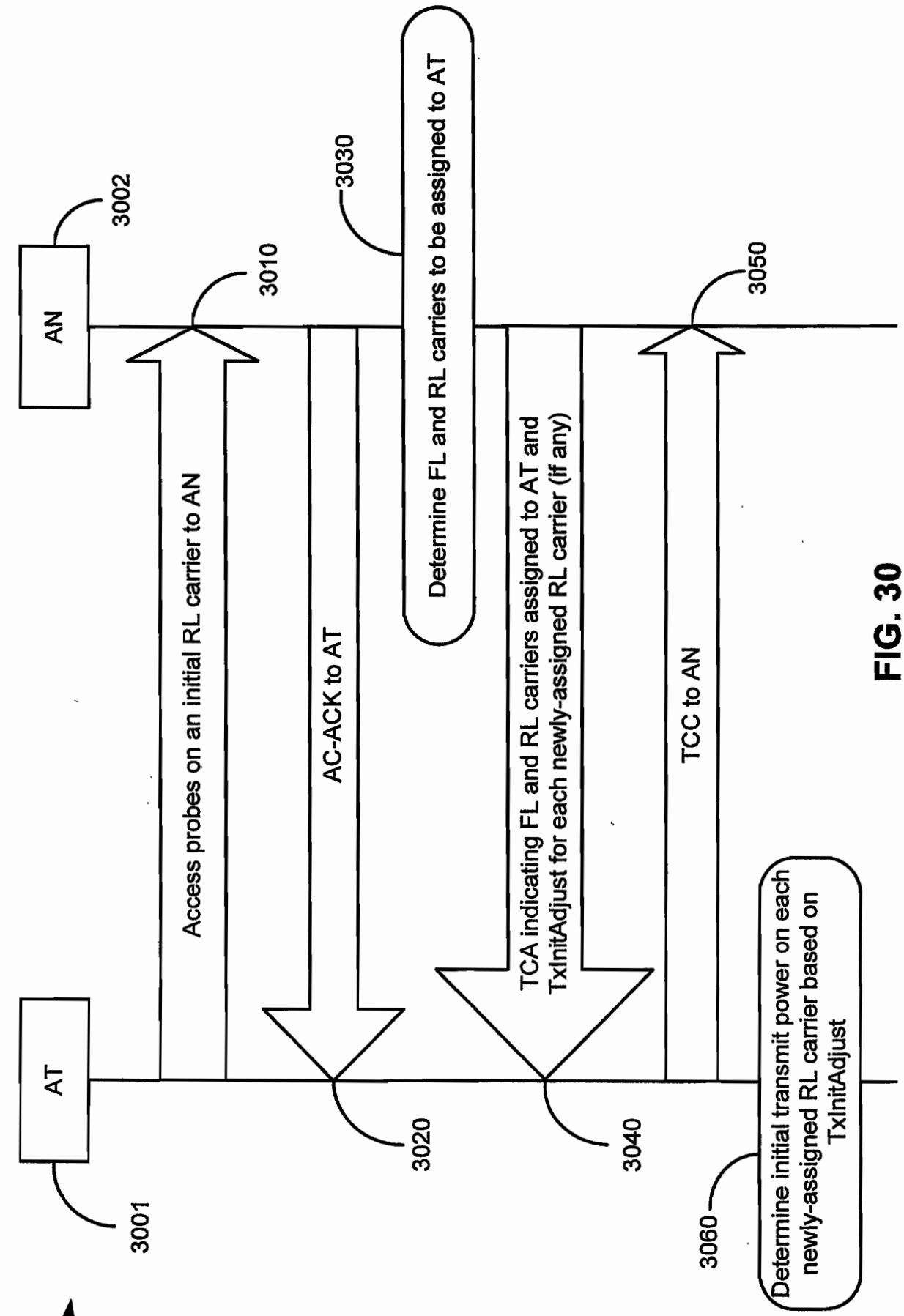
3000
AT
3001
AN
3002
Access probes on an initial RL carrier to AN
3010
AC-ACK to AT
3020
Determine FL and RL carriers to be assigned to AT
3030
TCA indicating FL and RL carriers assigned to AT and TxInitAdjust for each newly-assigned RL carrier (if any)
3040
TCC to AN
3050
Determine initial transmit power on each newly-assigned RL carrier based on TxInitAdjust
3060

FIG. 30

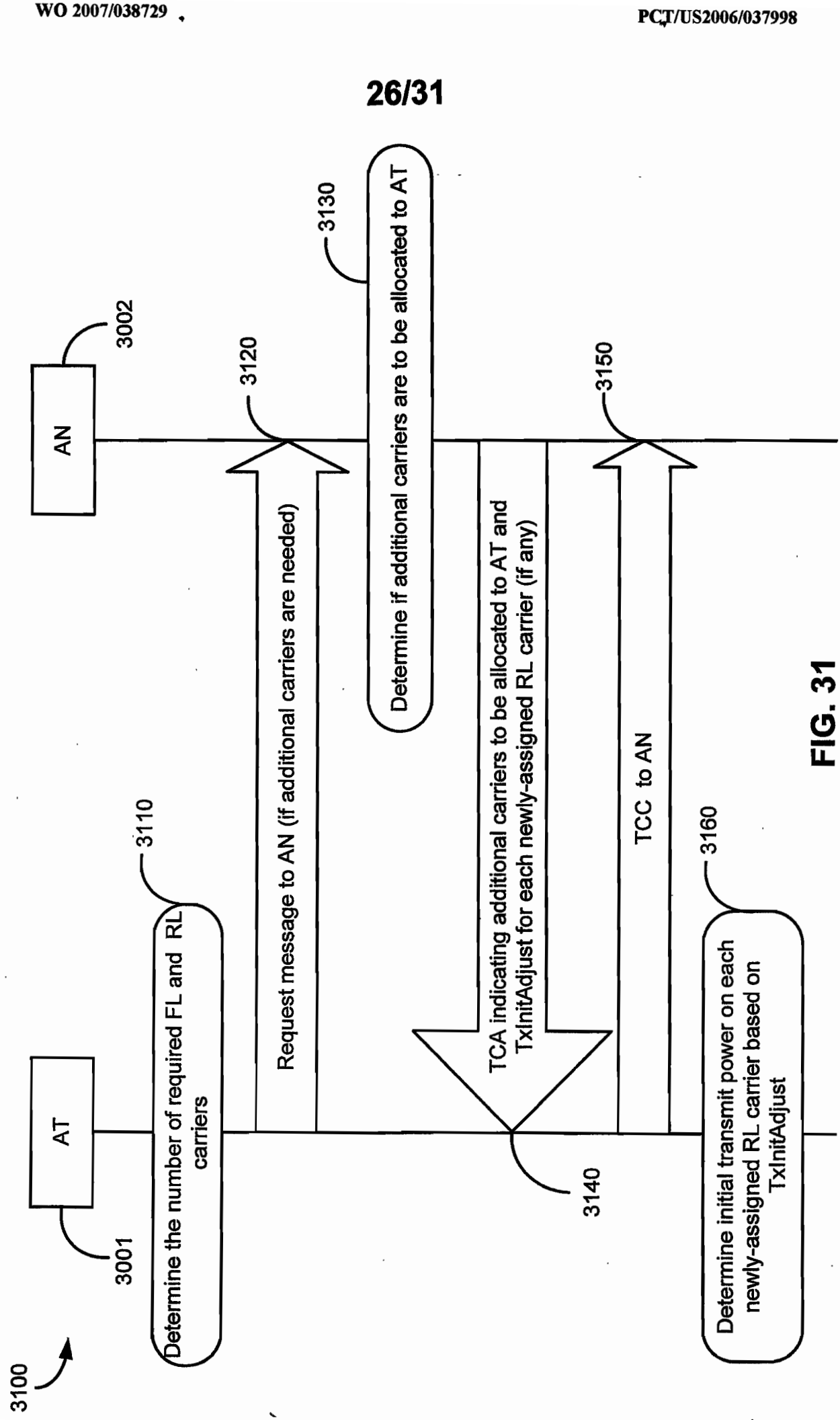
3100
AT
3001
AN
3002
3110
Determine the number of required FL and RL carriers
3120
Request message to AN (if additional carriers are needed)
3130
Determine if additional carriers are to be allocated to AT
3140
TCA indicating additional carriers to be allocated to AT and TxInitAdjust for each newly-assigned RL carrier (if any)
3150
TCC to AN
3160
Determine initial transmit power on each newly-assigned RL carrier based on TxInitAdjust

FIG. 31

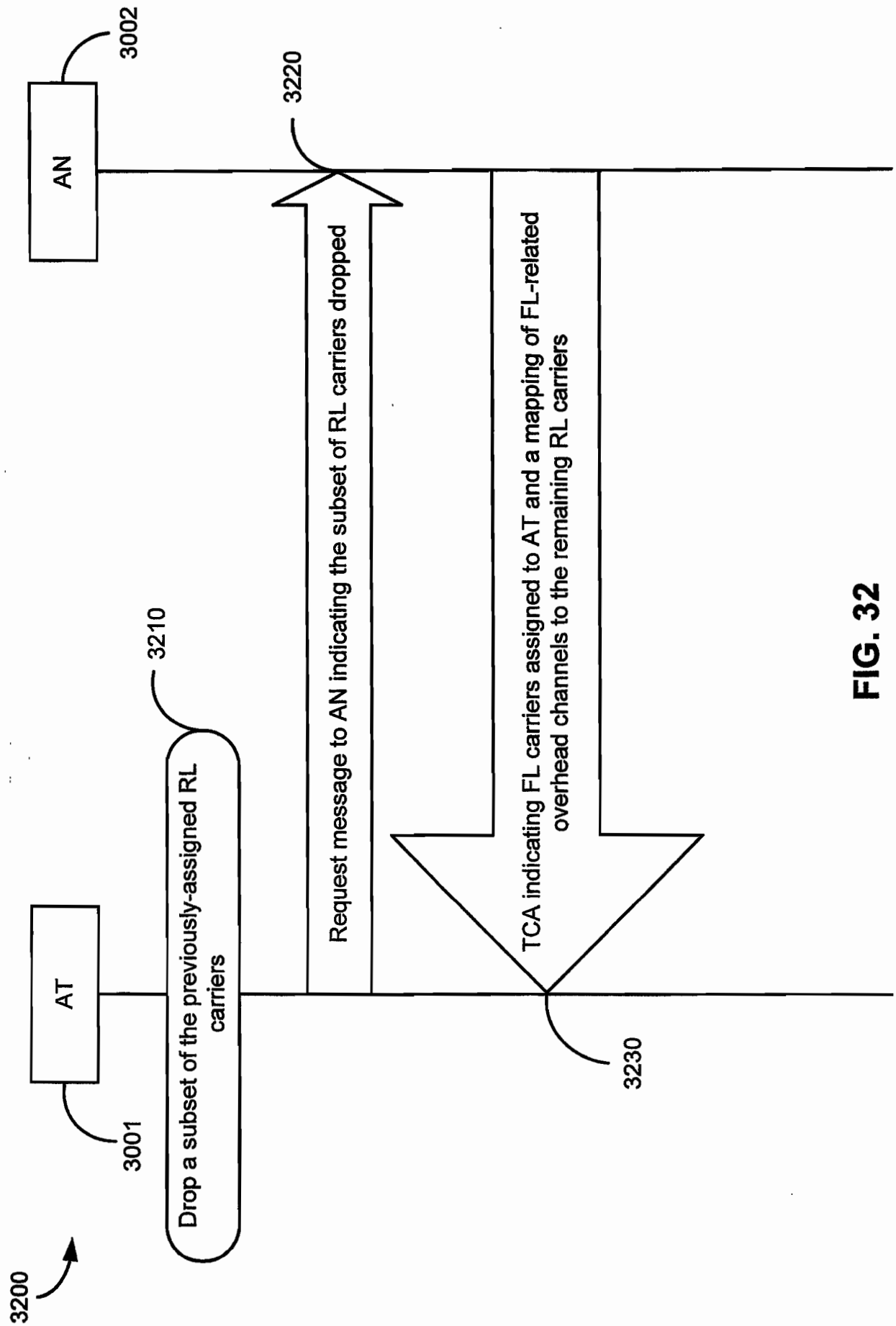
3200
AT
3001
AN
3002
Drop a subset of the previously-assigned RL carriers
3210
Request message to AN indicating the subset of RL carriers dropped
3220
TCA indicating FL carriers assigned to AT and a mapping of FL-related overhead channels to the remaining RL carriers
3230

FIG. 32

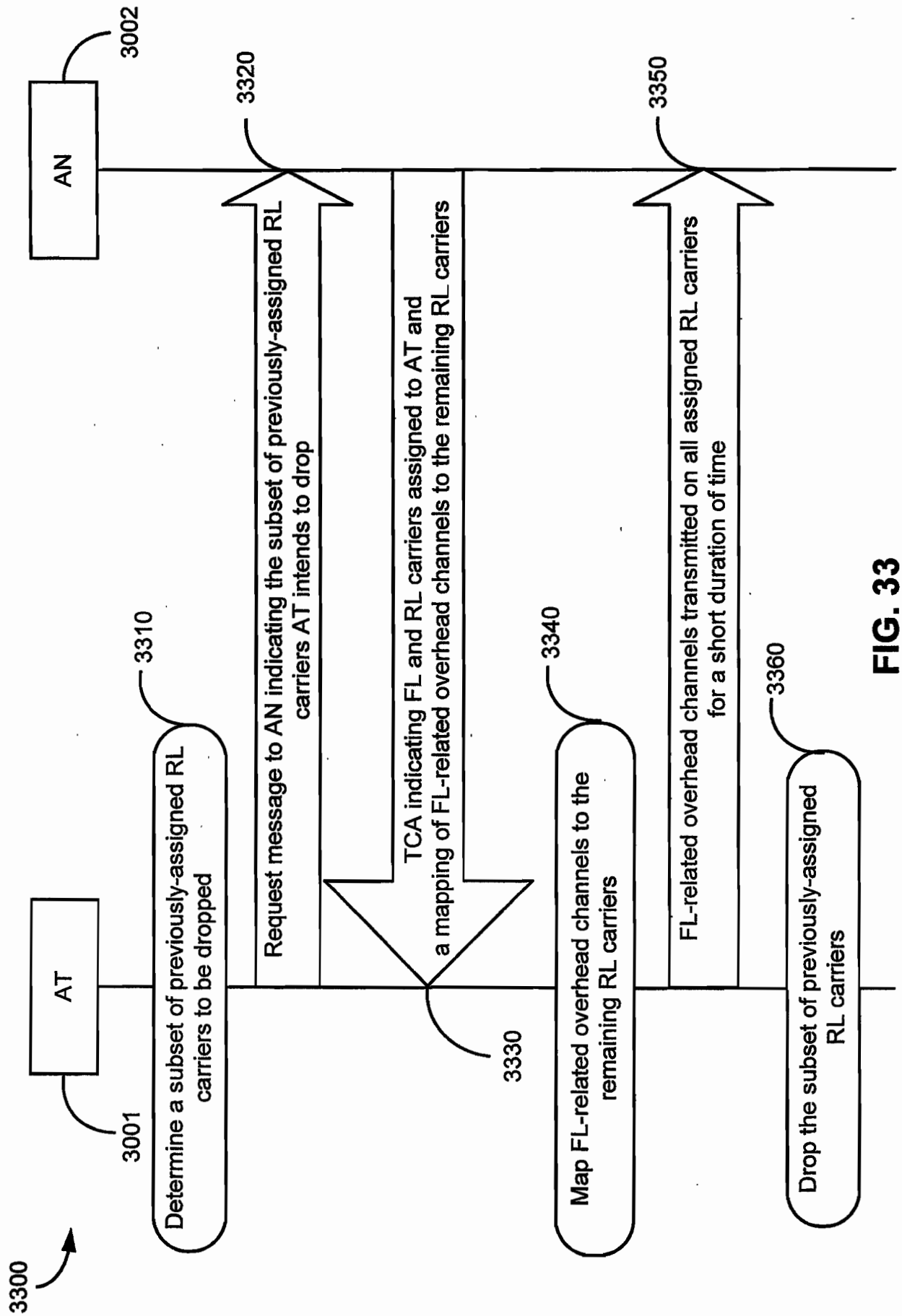
3300
AT
3001
AN
3002
Determine a subset of previously-assigned RL carriers to be dropped
3310
Request message to AN indicating the subset of previously-assigned RL carriers AT intends to drop
3320
TCA indicating FL and RL carriers assigned to AT and a mapping of FL-related overhead channels to the remaining RL carriers
3330
Map FL-related overhead channels to the remaining RL carriers
3340
FL-related overhead channels transmitted on all assigned RL carriers for a short duration of time
3350
Drop the subset of previously-assigned RL carriers
3360

FIG. 33

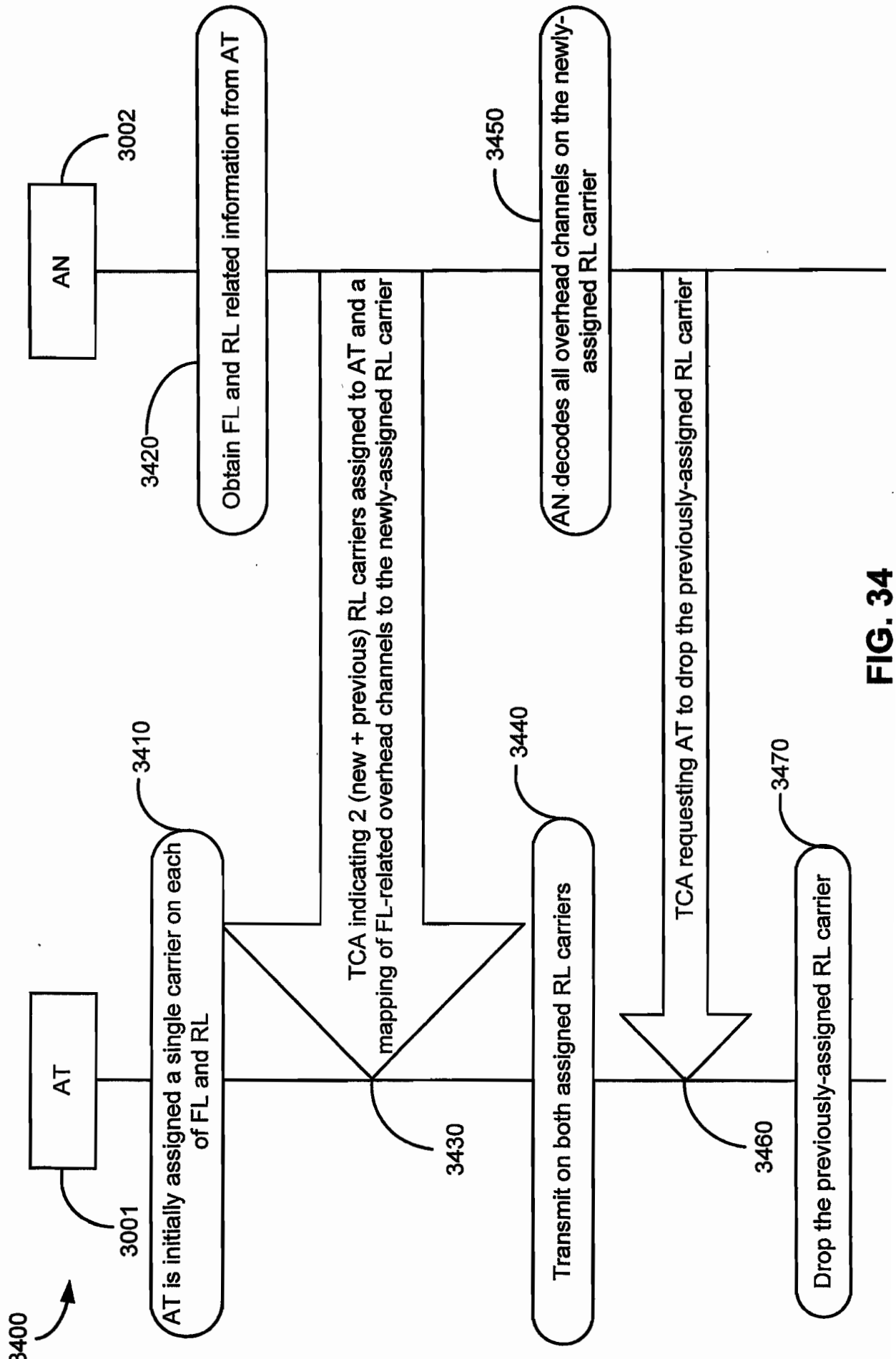
3400
AT
3001
AT is initially assigned a single carrier on each of FL and RL
3410
AN
3002
Obtain FL and RL related information from AT
3420
TCA indicating 2 (new + previous) RL carriers assigned to AT and a mapping of FL-related overhead channels to the newly-assigned RL carrier
3430
AN decodes all overhead channels on the newly-assigned RL carrier
3450
Transmit on both assigned RL carriers
3440
TCA requesting AT to drop the previously-assigned RL carrier
3460
Drop the previously-assigned RL carrier
3470

FIG. 34

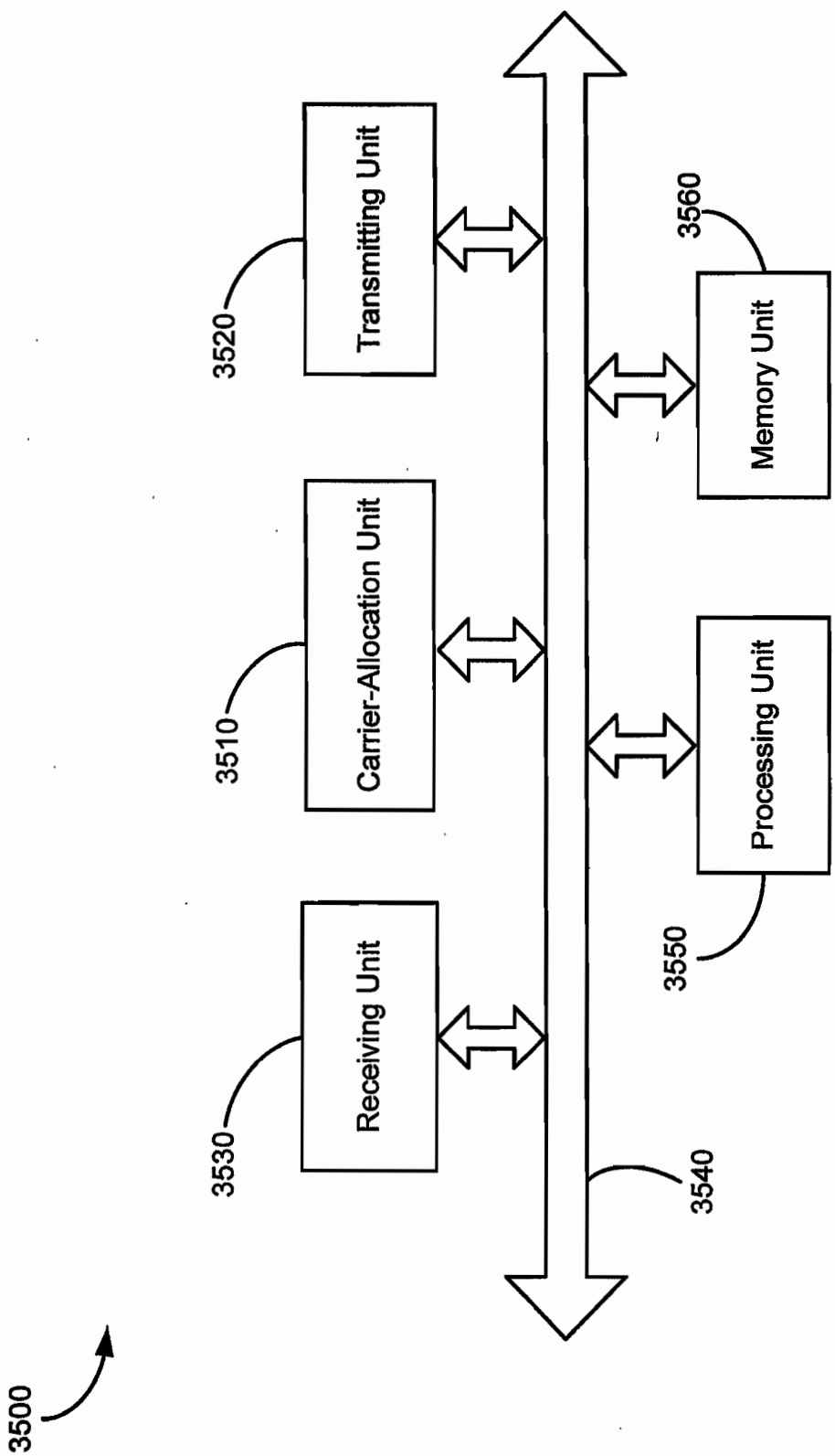
3500
3520
Transmitting Unit
3560
Memory Unit
3510
Carrier-Allocation Unit
Processing Unit
3550
3530
Receiving Unit
3540

FIG. 35

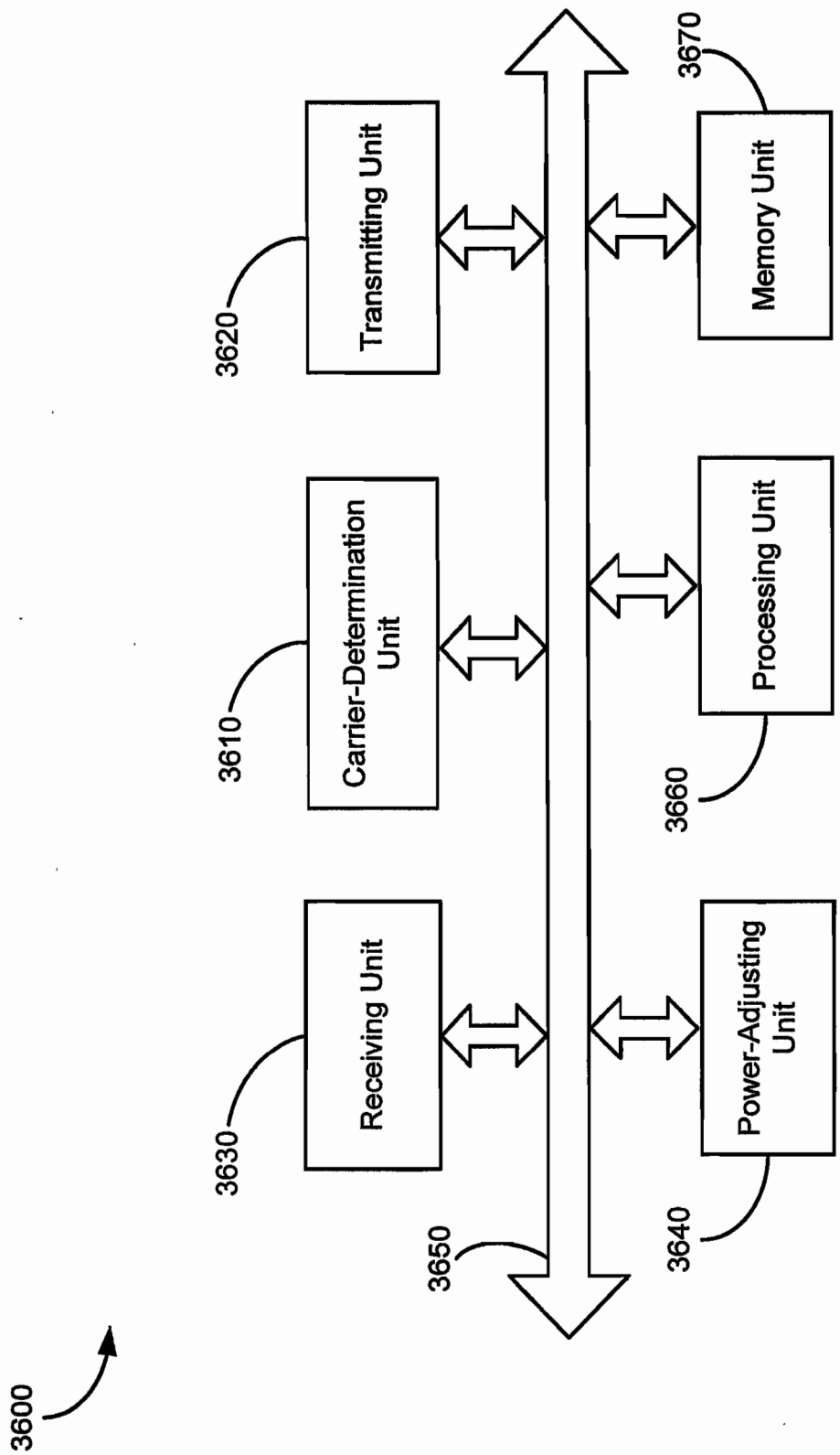
3600
3620
Transmitting Unit
3670
Memory Unit
3610
Carrier-Determination Unit
3660
Processing Unit
3630
Receiving Unit
3650
3640
Power-Adjusting Unit

FIG. 36