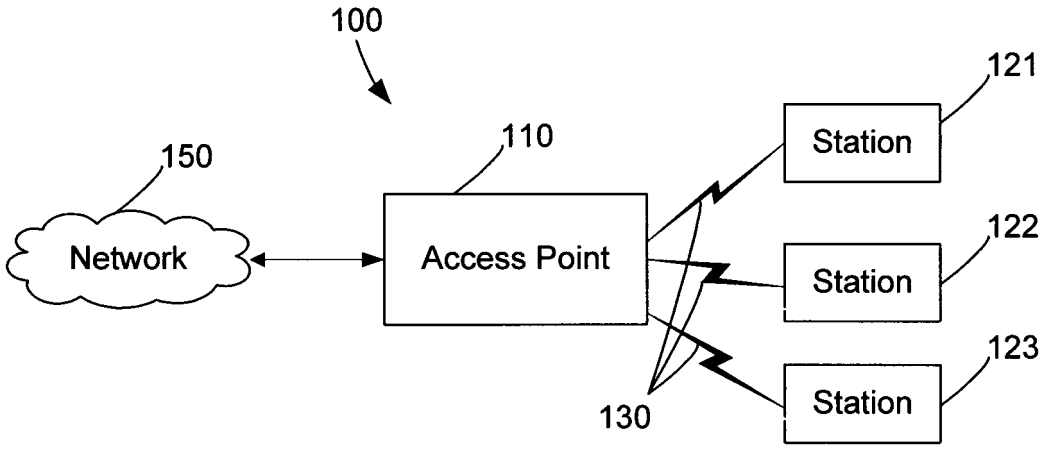
100
121
110
150
Station
Network
Access Point
122
Station
123
130
Station

FIG. 1

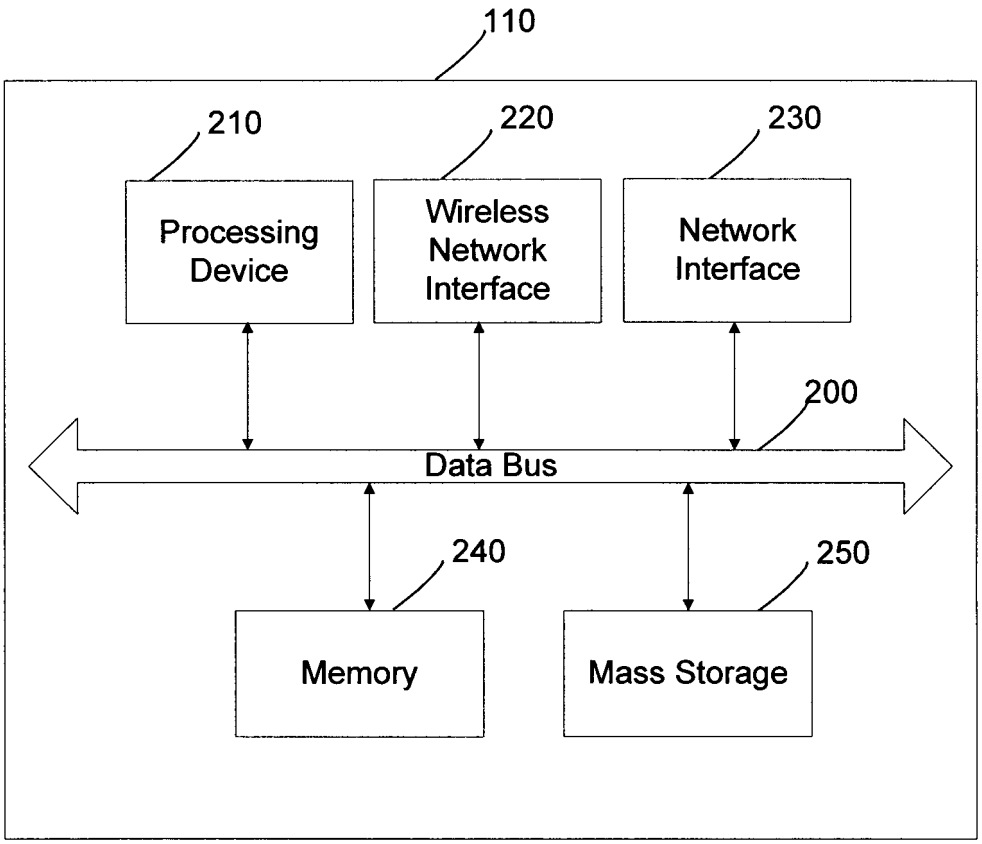
110
210
220
230
Processing Device
Wireless Network Interface
Network Interface
200
Data Bus
240
250
Memory
Mass Storage

FIG. 2

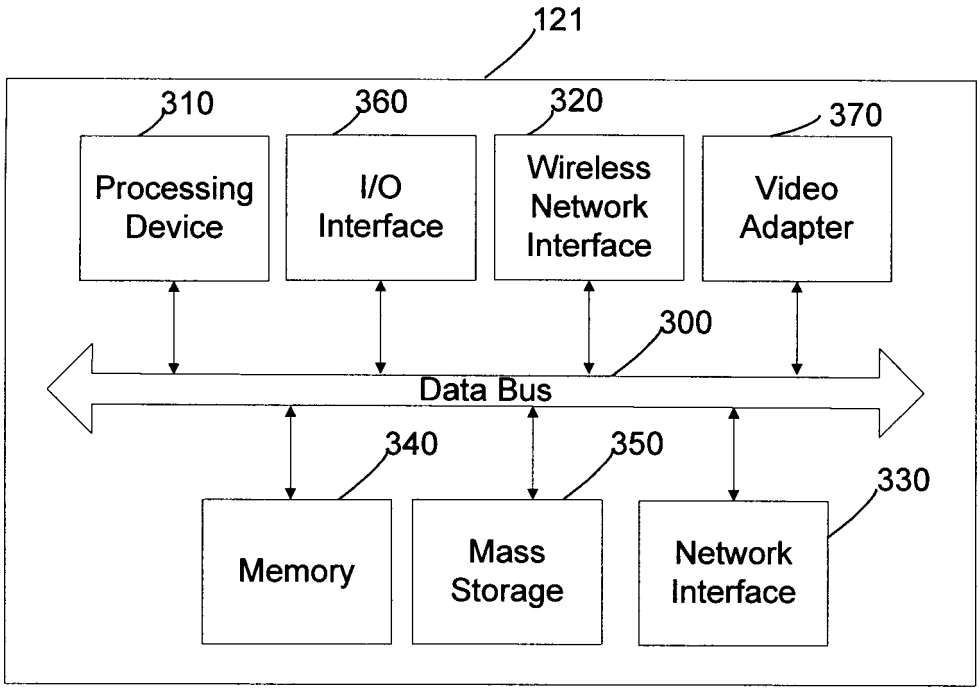
121
310
360
320
370
Processing Device
I/O Interface
Wireless Network Interface
Video Adapter
300
Data Bus
340
350
330
Memory
Mass Storage
Network Interface

FIG. 3

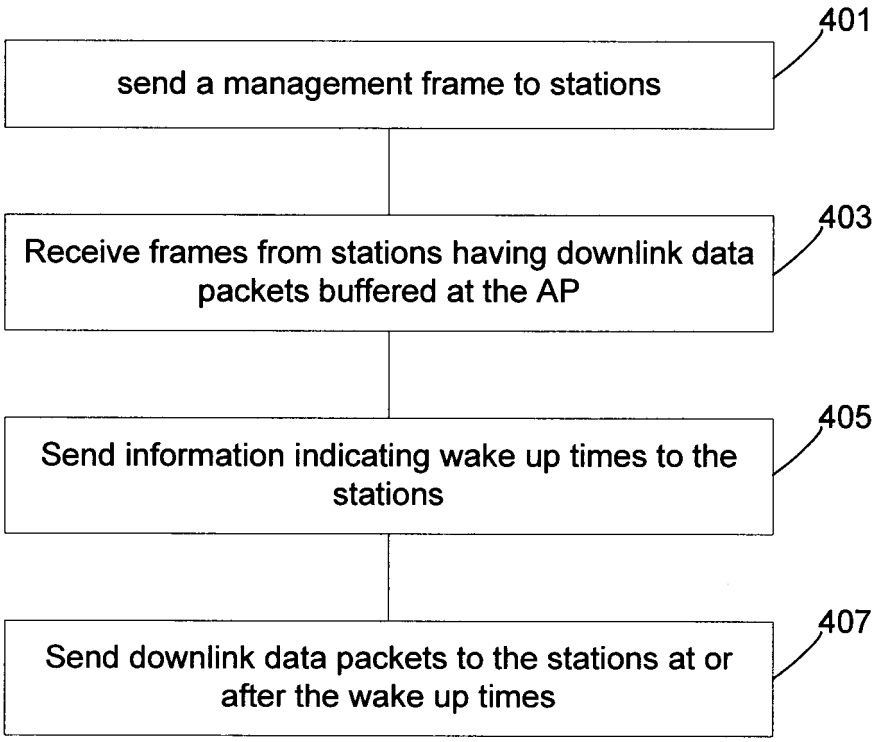
401
send a management frame to stations
403
Receive frames from stations having downlink data packets buffered at the AP
405
Send information indicating wake up times to the stations
407
Send downlink data packets to the stations at or after the wake up times

FIG. 4

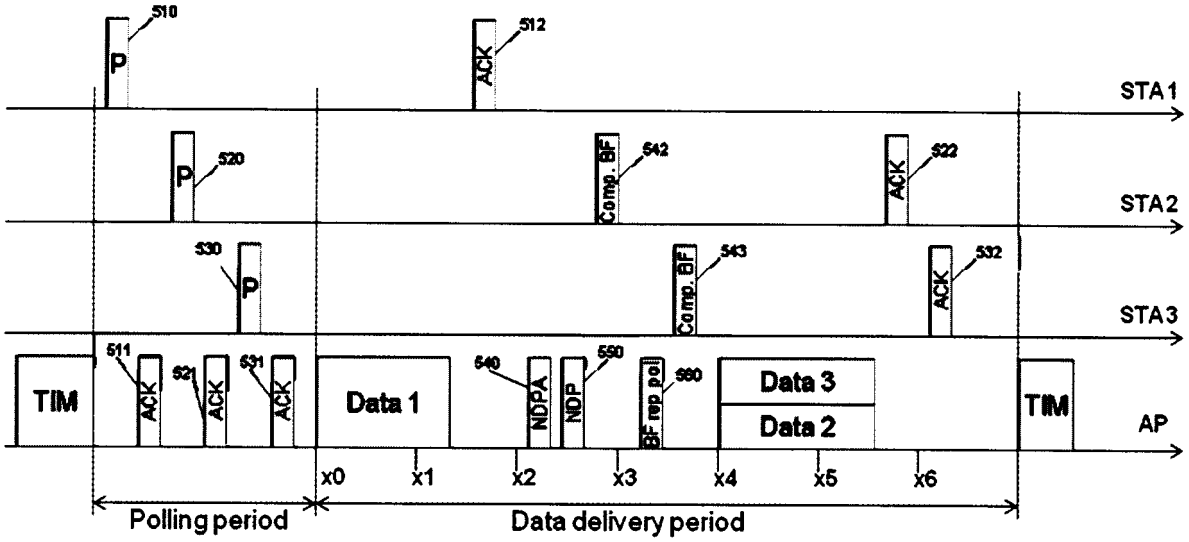
510
P
512
ACK
STA1
520
P
542
Comp. BF
522
ACK
STA2
530
P
543
Comp. BF
532
ACK
STA3
TIM
511
ACK
521
ACK
531
ACK
Data 1
540
NDPA
NDP
550
BF rep poll
560
Data 3
Data 2
TIM
AP
x0
x1
x2
x3
x4
x5
x6
Polling period
Data delivery period

FIG. 5

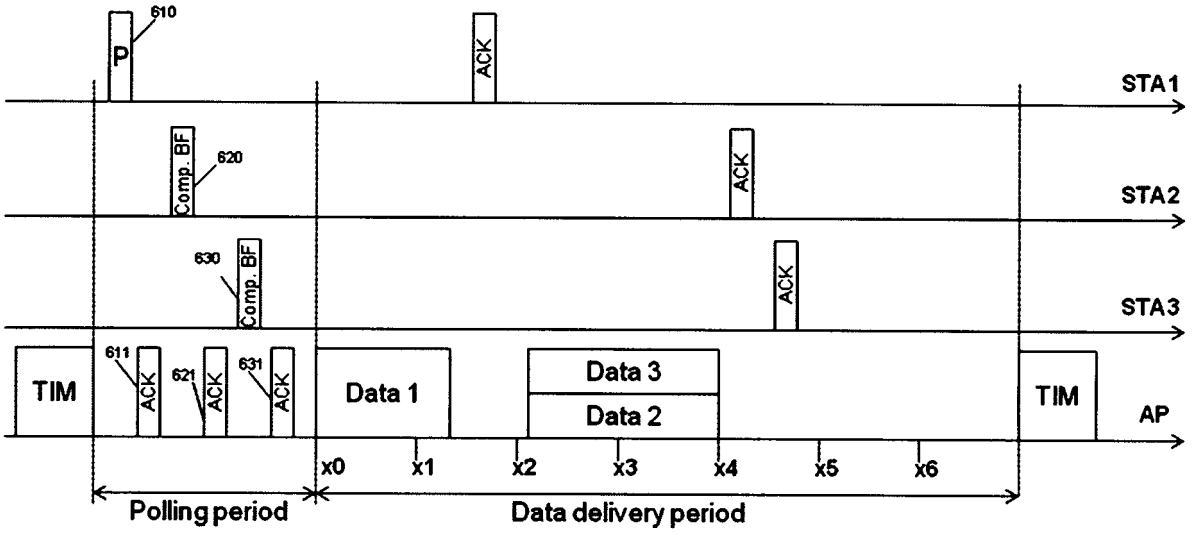
610
P
ACK
STA1
Comp. BF
620
ACK
STA2
630
Comp. BF
ACK
STA3
TIM
611
ACK
621
ACK
631
ACK
Data 1
Data 3
Data 2
TIM
AP
x0
x1
x2
x3
x4
x5
x6
Polling period
Data delivery period

FIG. 6

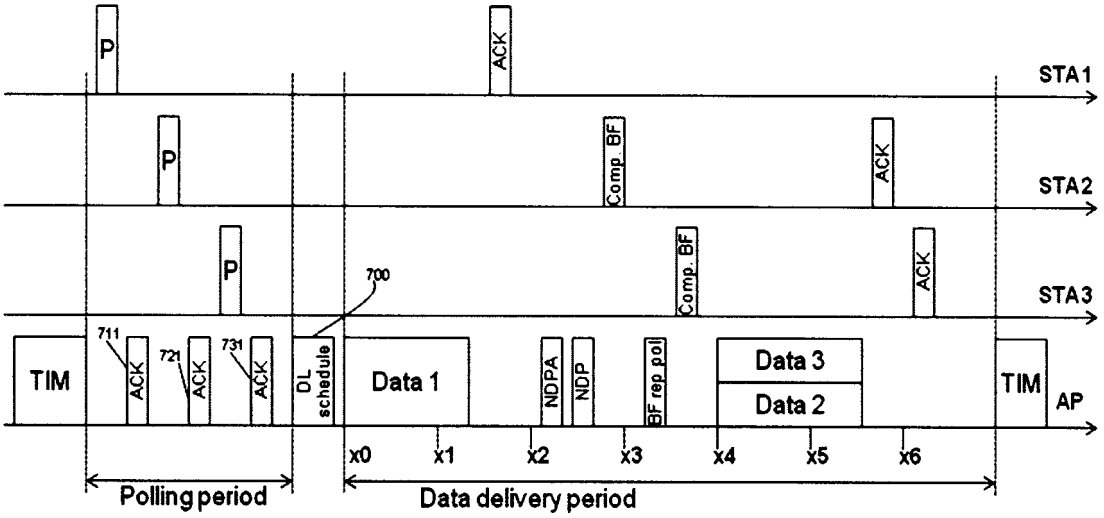
P
ACK
STA1
P
Comp. BF
ACK
STA2
P
Comp. BF
ACK
STA3
700
711
721
731
TIM
ACK
ACK
ACK
DL schedule
Data 1
NDPA
NDP
BF rep poll
Data 3
Data 2
TIM
AP
x0
x1
x2
x3
x4
x5
x6
Polling period
Data delivery period

FIG. 7

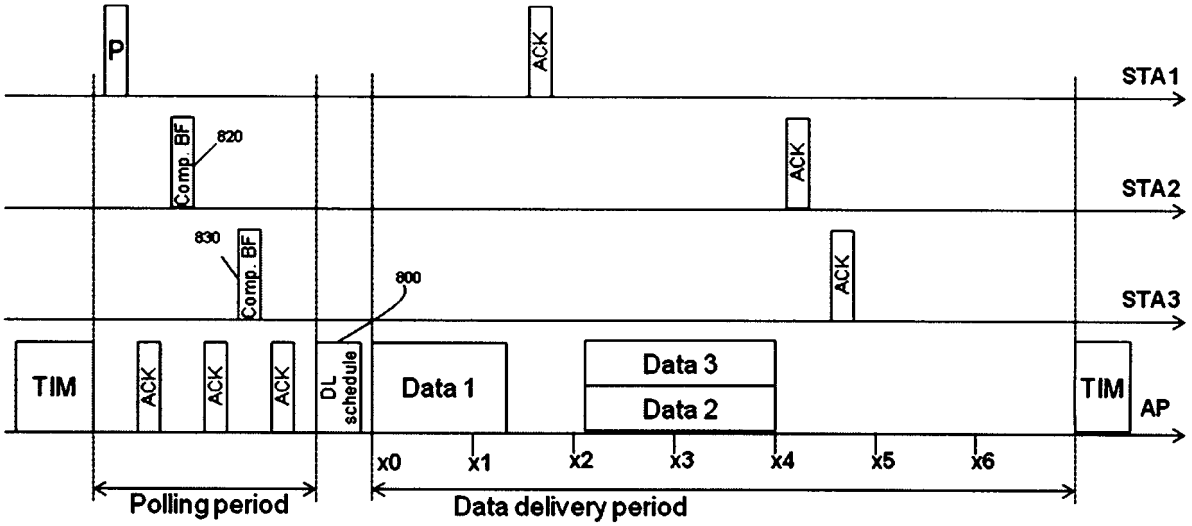
P
ACK
STA1
Comp. BF
820
ACK
STA2
830
Comp. BF
ACK
STA3
800
TIM
ACK
ACK
ACK
DL schedule
Data 1
Data 3
Data 2
TIM
AP
x0
x1
x2
x3
x4
x5
x6
Polling period
Data delivery period

FIG. 8

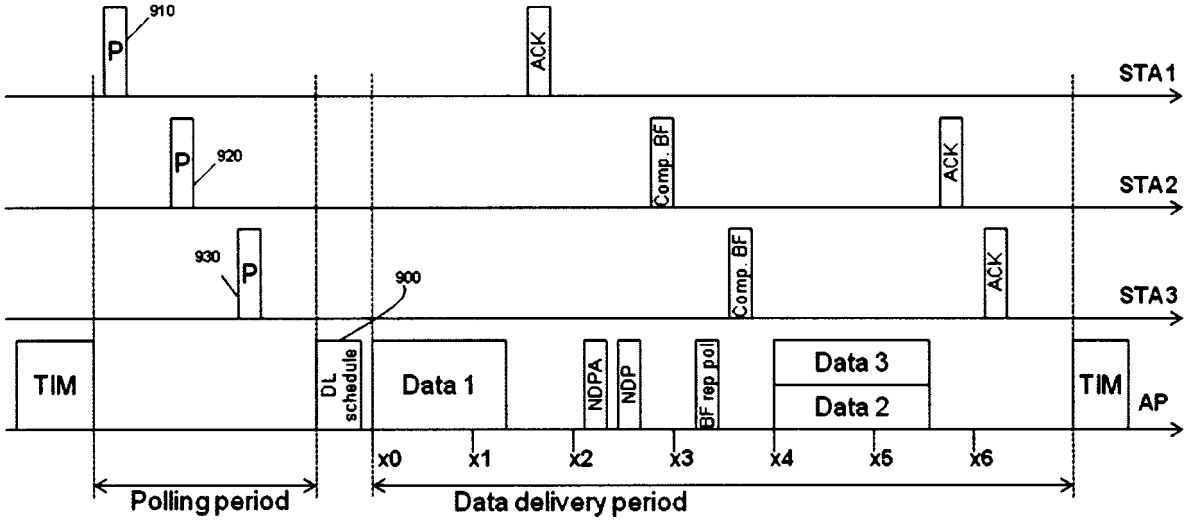
910
P
ACK
STA1
P
920
Comp. BF
ACK
STA2
930
P
900
Comp. BF
ACK
STA3
TIM
DL schedule
Data 1
NDPA
NDP
BF rep poll
Data 3
Data 2
TIM
AP
x0
x1
x2
x3
x4
x5
x6
Polling period
Data delivery period

FIG. 9

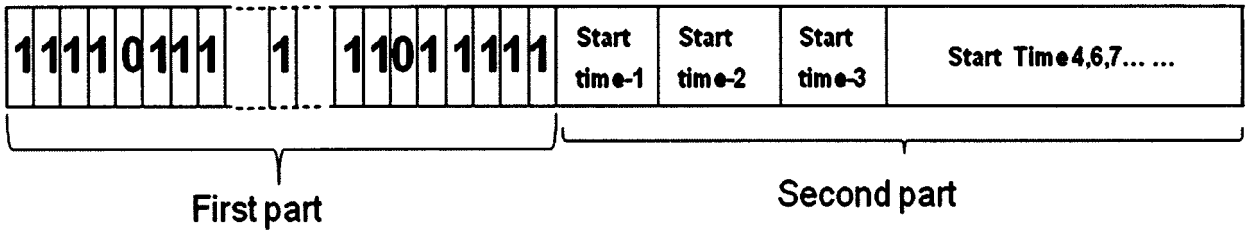
1 1 1 1 0 1 1 1
1
1 1 0 1 1 1 1 1
Start time-1
Start time-2
Start time-3
Start Time4,6,7... ...
First part
Second part

FIG. 10