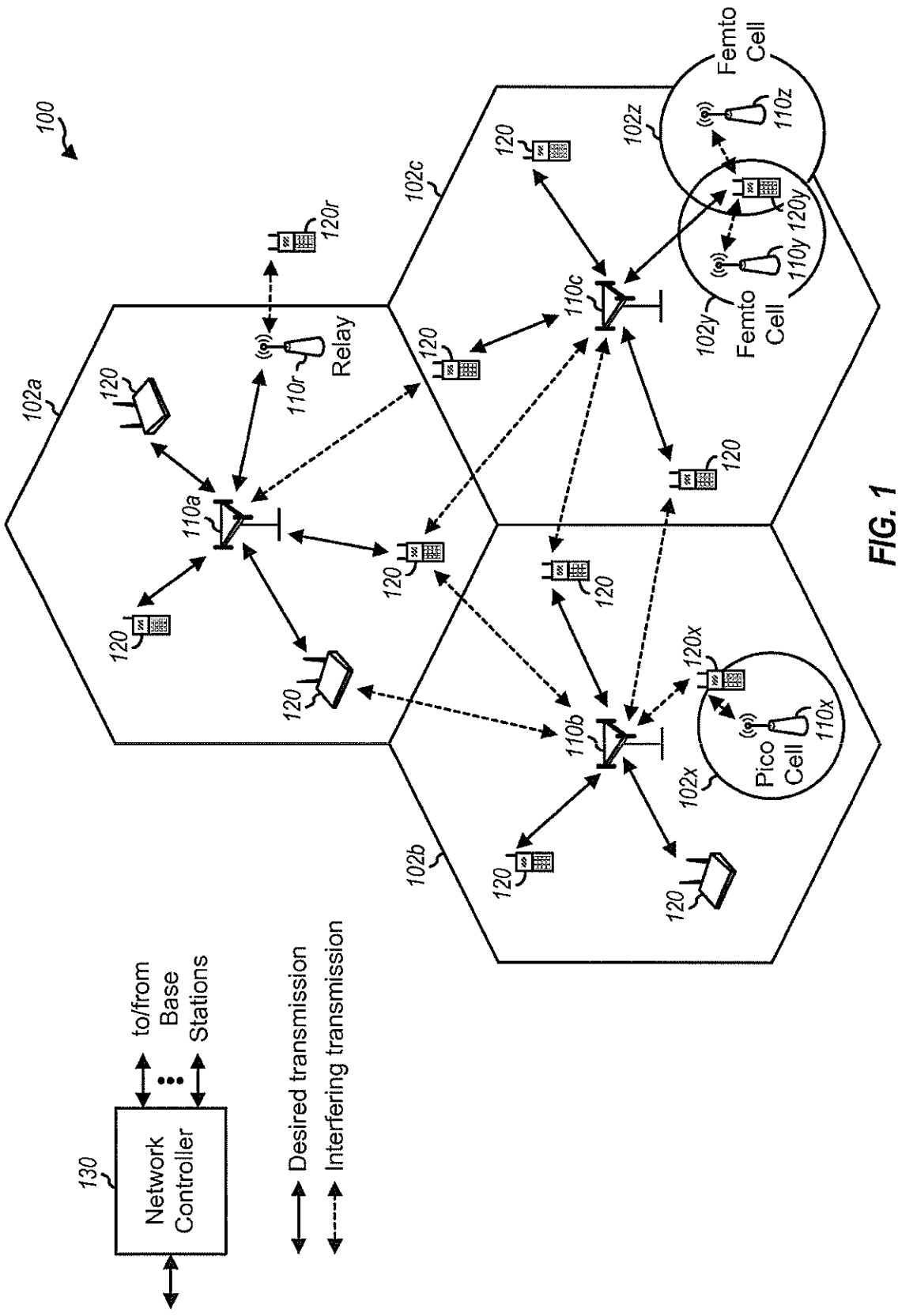
100
102a
102b
102c
102x
102y
102z
110a
110b
110c
110r
110x
110y
110z
120
120r
120x
120y
Relay
Pico Cell
Femto Cell
Femto Cell
130
Network Controller
to/from Base Stations
Desired transmission
Interfering transmission

FIG. 1

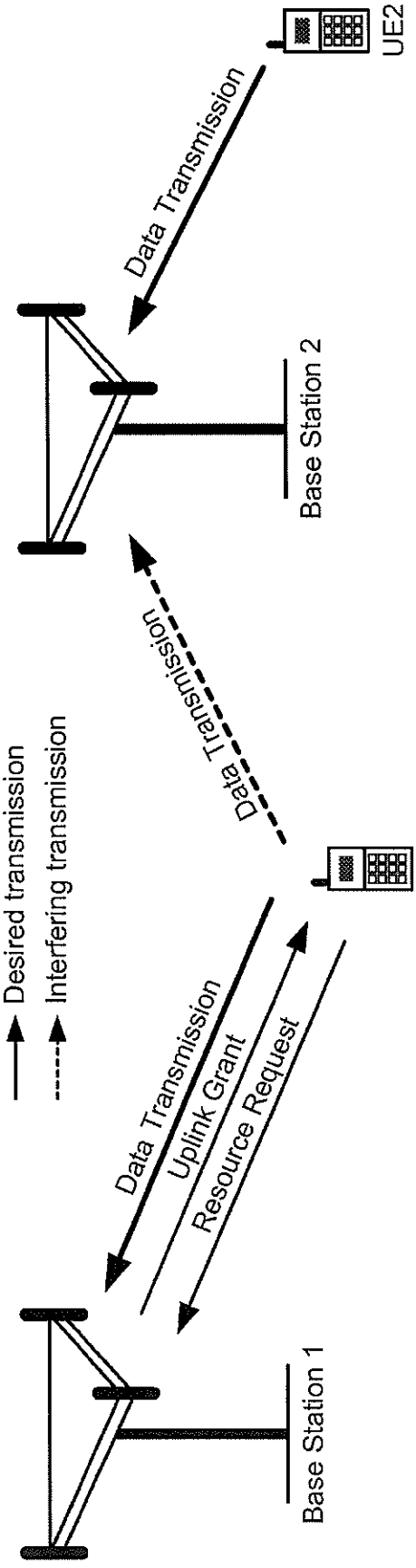
Desired transmission
Interfering transmission
Base Station 1
Base Station 2
UE1
UE2
Resource Request
Uplink Grant
Data Transmission
Data Transmission
Data Transmission

FIG. 2A

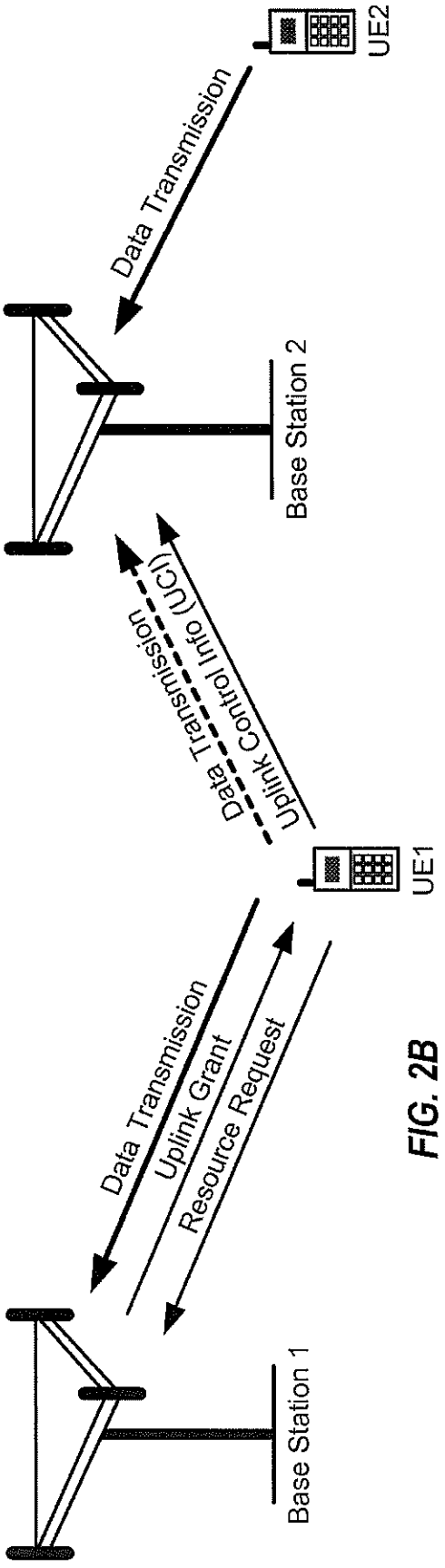
Base Station 1
Base Station 2
UE1
UE2
Resource Request
Uplink Grant
Data Transmission
Uplink Control Info (UCI)
Data Transmission
Data Transmission

FIG. 2B

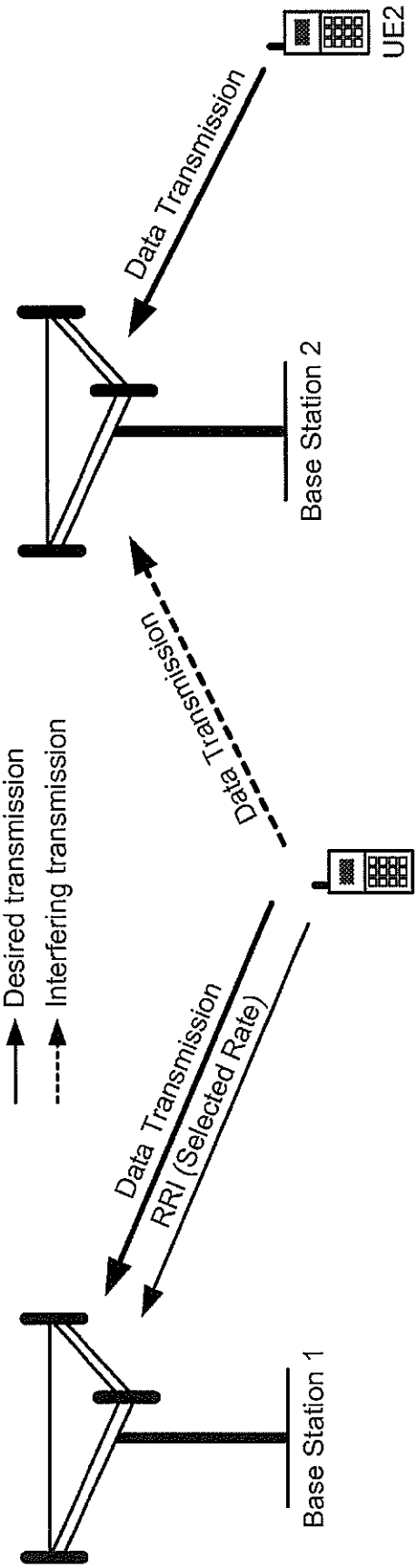
Desired transmission
Interfering transmission
Base Station 1
Base Station 2
UE1
UE2
Data Transmission
RRI (Selected Rate)
Data Transmission
Data Transmission

FIG. 3A

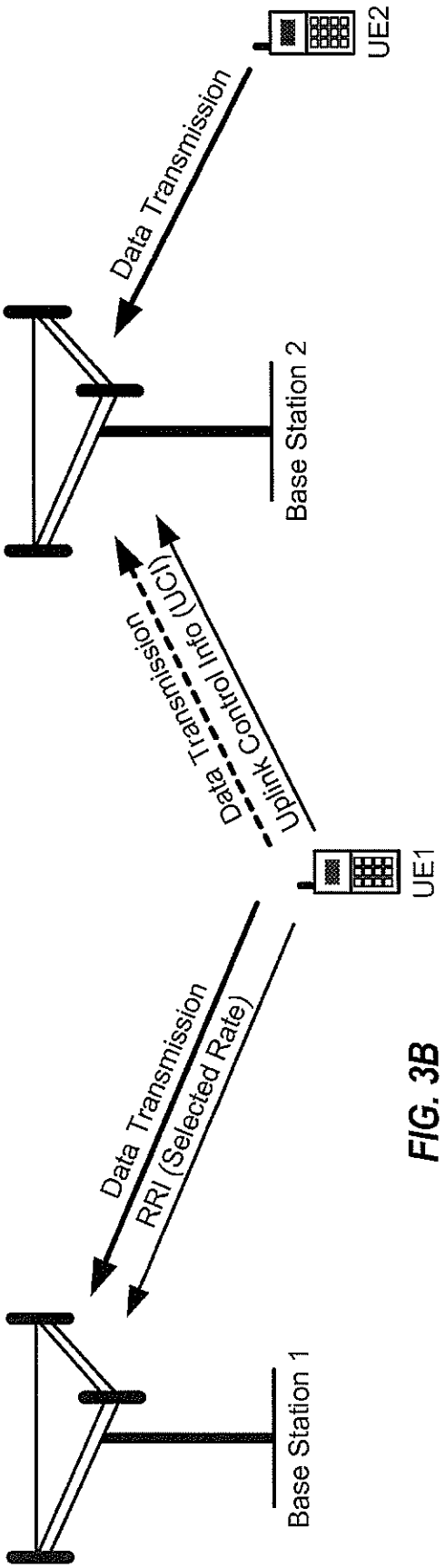
Base Station 1
Base Station 2
UE1
UE2
Data Transmission
RRI (Selected Rate)
Data Transmission
Uplink Control Info (UCI)
Data Transmission

FIG. 3B

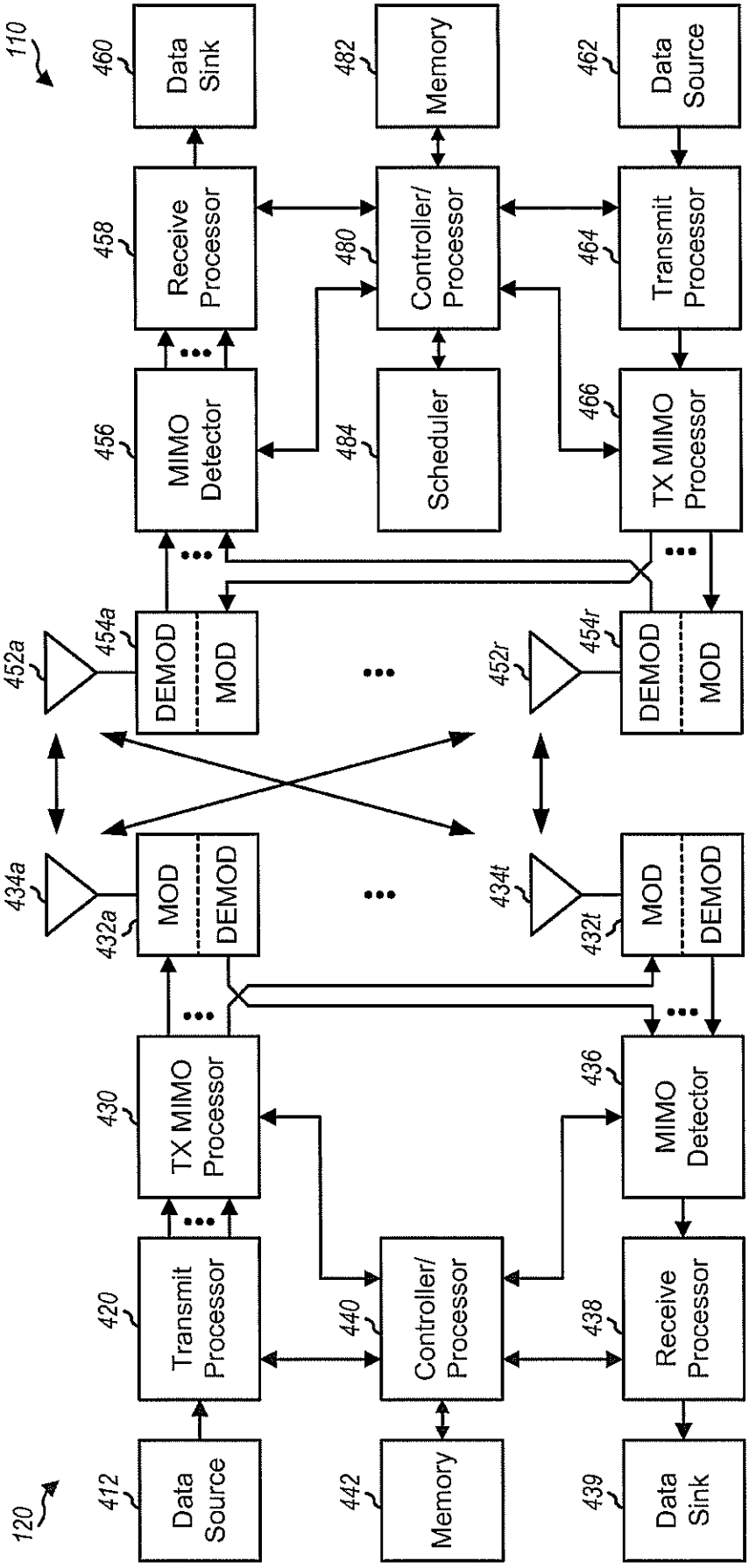
110
460
Data Sink
482
Memory
462
Data Source
458
Receive Processor
480
Controller/ Processor
464
Transmit Processor
456
MIMO Detector
484
Scheduler
466
TX MIMO Processor
452a
454a
DEMOD
MOD
452r
454r
DEMOD
MOD
434a
432a
MOD
DEMOD
434t
432t
MOD
DEMOD
430
TX MIMO Processor
436
MIMO Detector
420
Transmit Processor
440
Controller/ Processor
438
Receive Processor
120
412
Data Source
442
Memory
439
Data Sink

FIG. 4

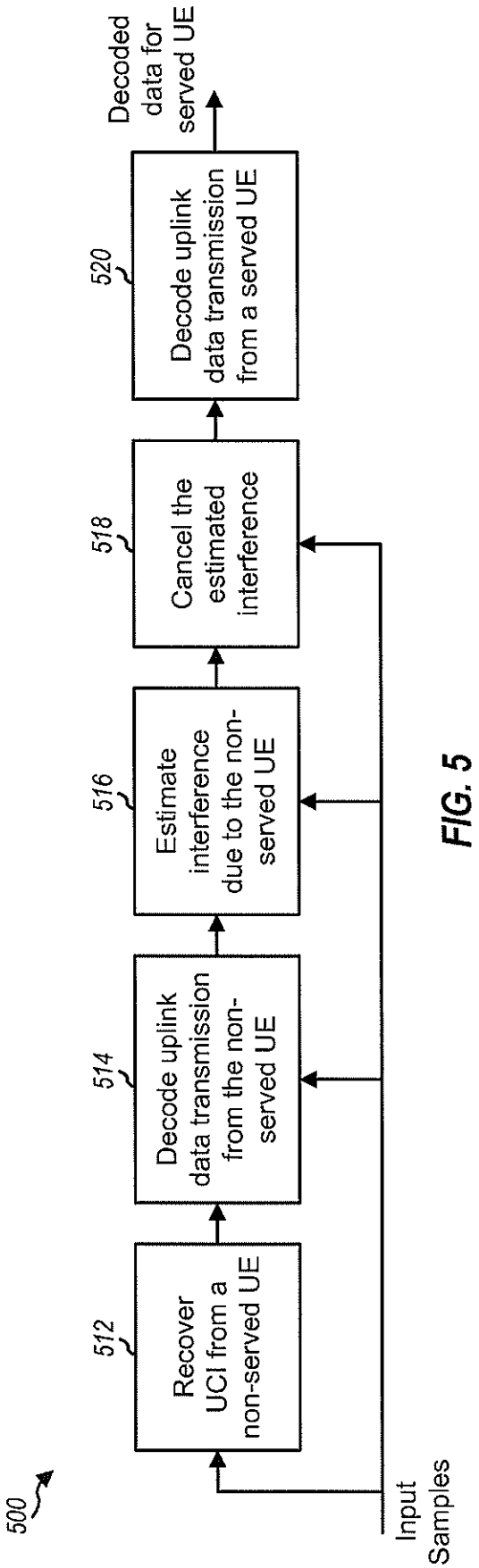
500
Input Samples
512
Recover UCI from a non-served UE
514
Decode uplink data transmission from the non-served UE
516
Estimate interference due to the non-served UE
518
Cancel the estimated interference
520
Decode uplink data transmission from a served UE
Decoded data for served UE

FIG. 5

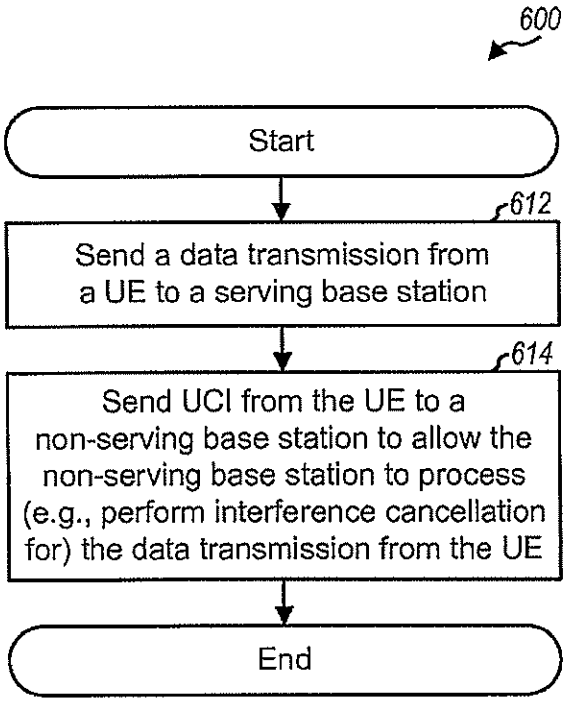
600
Start
612
Send a data transmission from a UE to a serving base station
614
Send UCI from the UE to a non-serving base station to allow the non-serving base station to process (e.g., perform interference cancellation for) the data transmission from the UE
End

FIG. 6

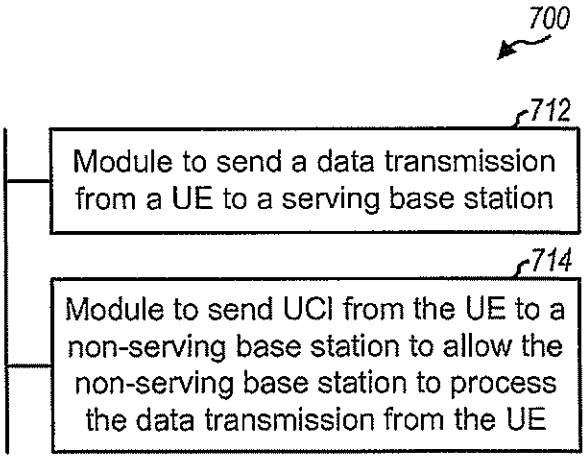
700
712
Module to send a data transmission from a UE to a serving base station
714
Module to send UCI from the UE to a non-serving base station to allow the non-serving base station to process the data transmission from the UE

FIG. 7

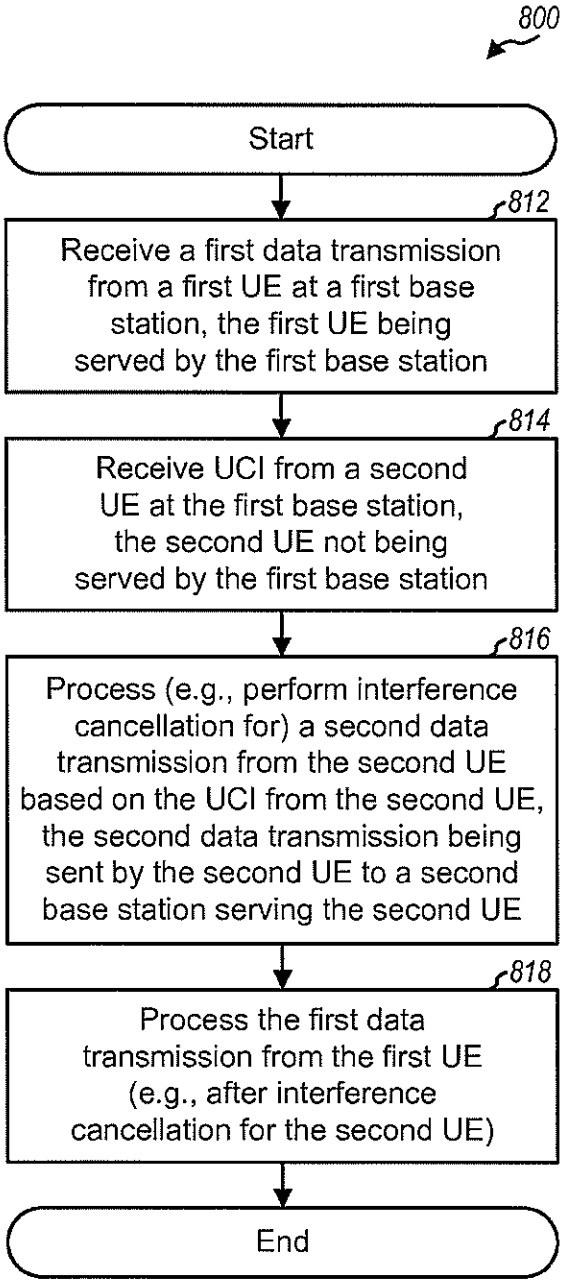
800
Start
812
Receive a first data transmission from a first UE at a first base station, the first UE being served by the first base station
814
Receive UCI from a second UE at the first base station, the second UE not being served by the first base station
816
Process (e.g., perform interference cancellation for) a second data transmission from the second UE based on the UCI from the second UE, the second data transmission being sent by the second UE to a second base station serving the second UE
818
Process the first data transmission from the first UE (e.g., after interference cancellation for the second UE)
End

FIG. 8

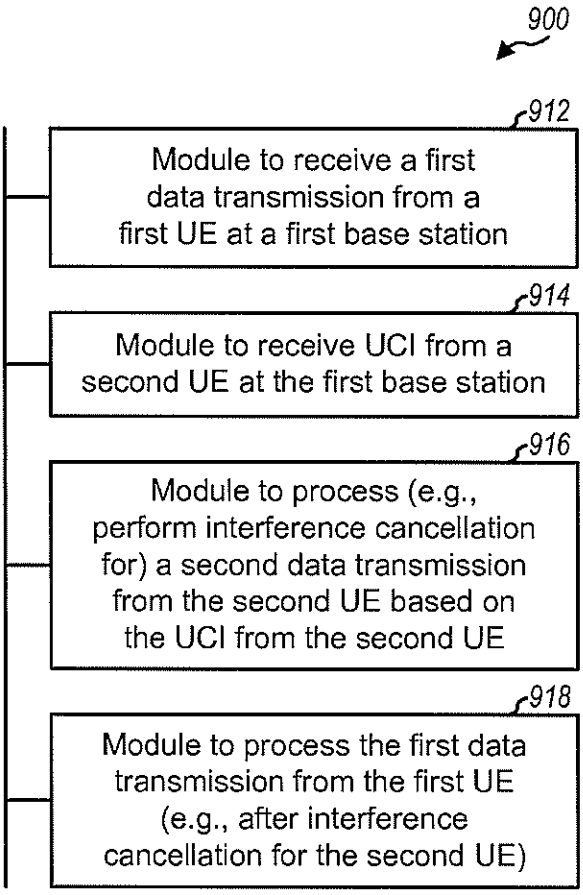
900
912
Module to receive a first data transmission from a first UE at a first base station
914
Module to receive UCI from a second UE at the first base station
916
Module to process (e.g., perform interference cancellation for) a second data transmission from the second UE based on the UCI from the second UE
918
Module to process the first data transmission from the first UE (e.g., after interference cancellation for the second UE)

FIG. 9

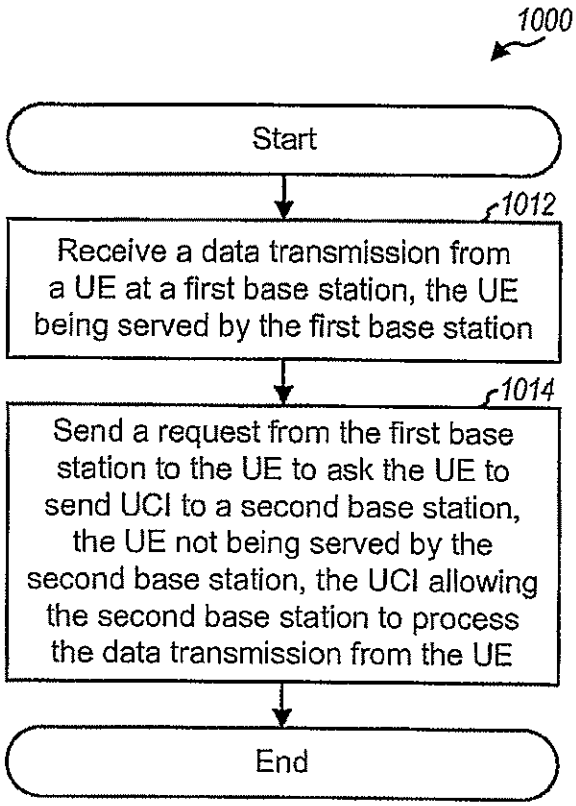
1000
Start
1012
Receive a data transmission from a UE at a first base station, the UE being served by the first base station
1014
Send a request from the first base station to the UE to ask the UE to send UCI to a second base station, the UE not being served by the second base station, the UCI allowing the second base station to process the data transmission from the UE
End

FIG. 10

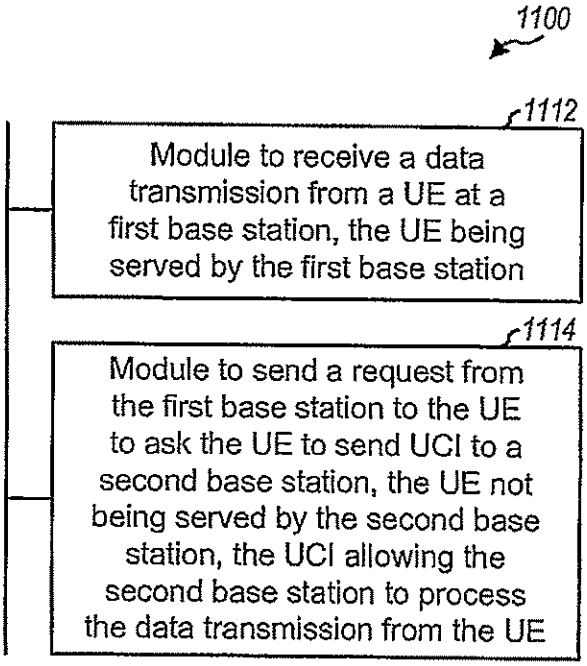
1100
1112
Module to receive a data transmission from a UE at a first base station, the UE being served by the first base station
1114
Module to send a request from the first base station to the UE to ask the UE to send UCI to a second base station, the UE not being served by the second base station, the UCI allowing the second base station to process the data transmission from the UE

FIG. 11