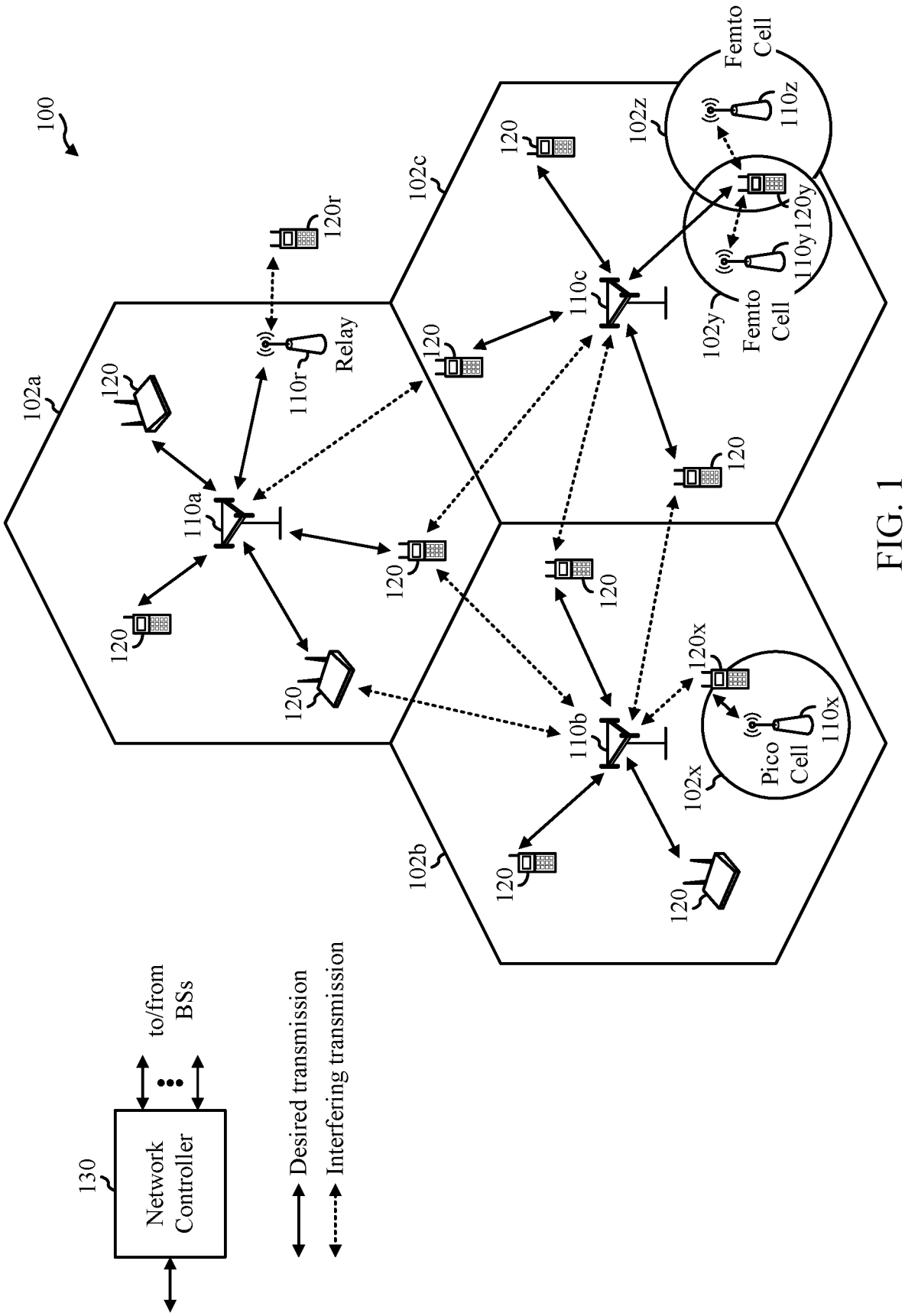

100
102a
102b
102c
102x
102y
102z
110a
110b
110c
110r
110x
110y
110z
120
120r
120x
120y
Relay
Pico Cell
Femto Cell
Femto Cell
130
Network Controller
to/from BSs
Desired transmission
Interfering transmission

FIG. 1

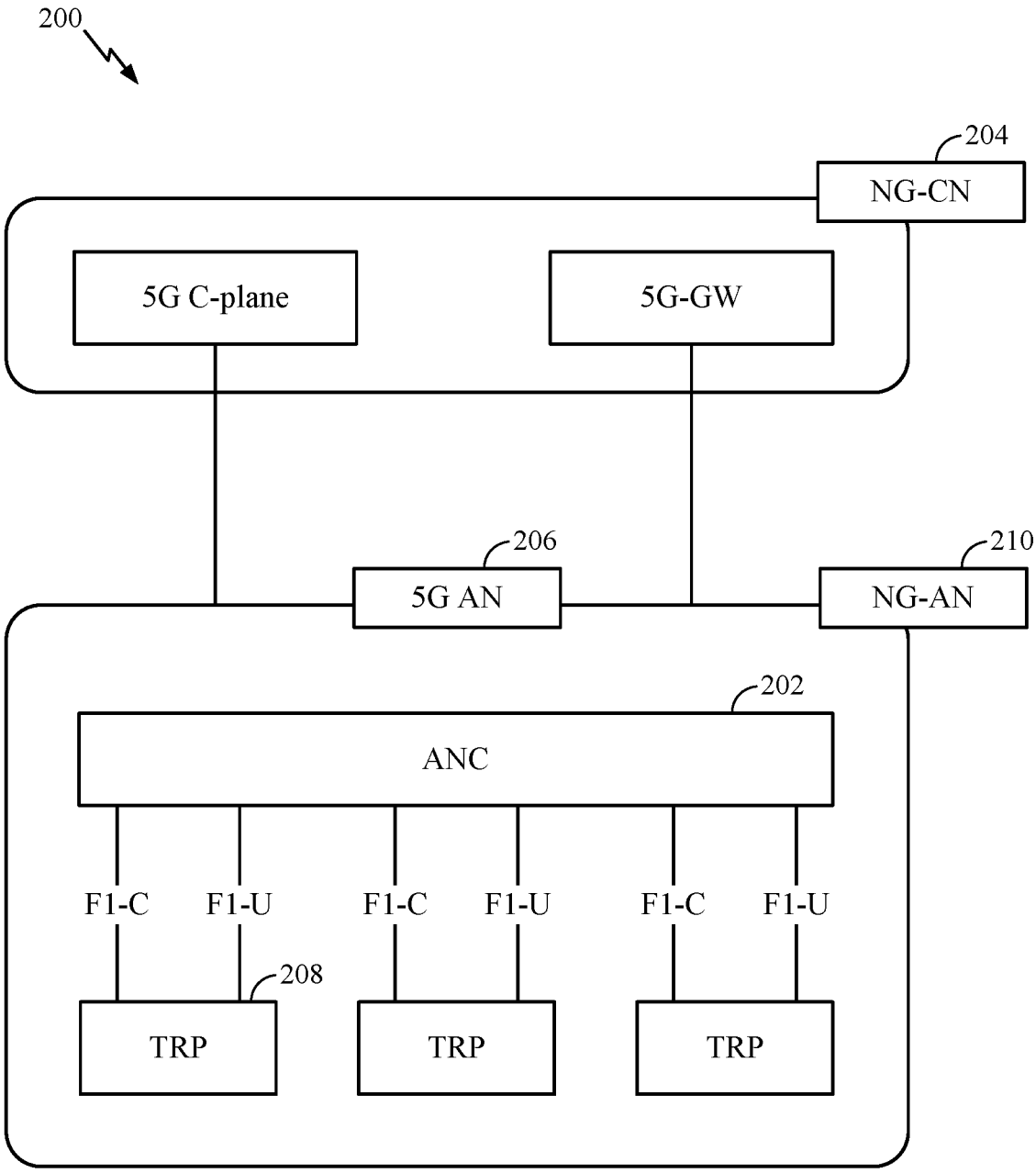

200
204
NG-CN
5G C-plane
5G-GW
206
5G AN
210
NG-AN
202
ANC
F1-C
F1-U
F1-C
F1-U
F1-C
F1-U
208
TRP
TRP
TRP

FIG. 2

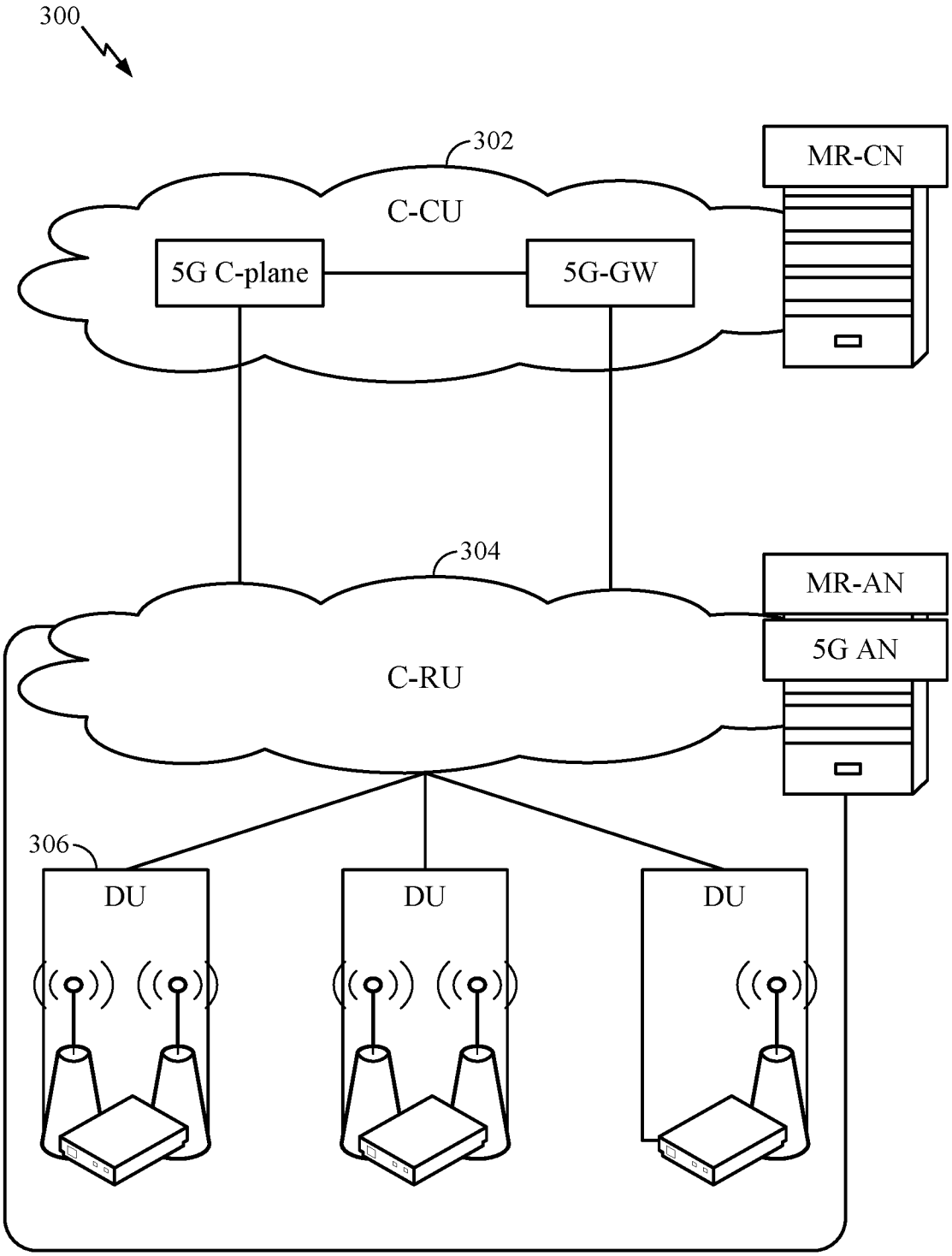


FIG. 3

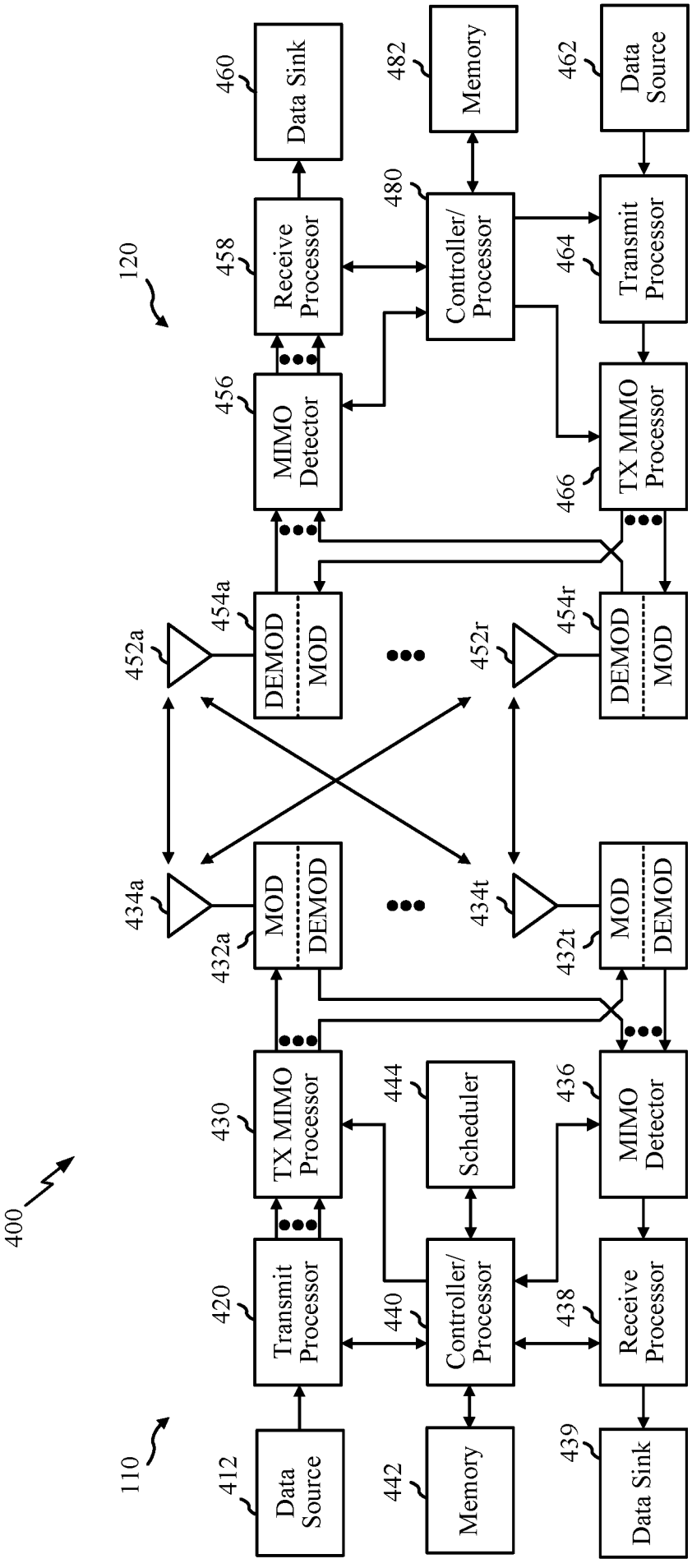

400
110
120
Data Source
412
Transmit Processor
420
TX MIMO Processor
430
MOD
DEMOD
432a
434a
DEMOD
MOD
454a
452a
MIMO Detector
456
Receive Processor
458
Data Sink
460
Memory
442
Controller/ Processor
440
Scheduler
444
Memory
482
Controller/ Processor
480
Data Source
462
Transmit Processor
464
TX MIMO Processor
466
MIMO Detector
436
Receive Processor
438
Data Sink
439
MOD
DEMOD
432t
434t
DEMOD
MOD
454r
452r

FIG. 4

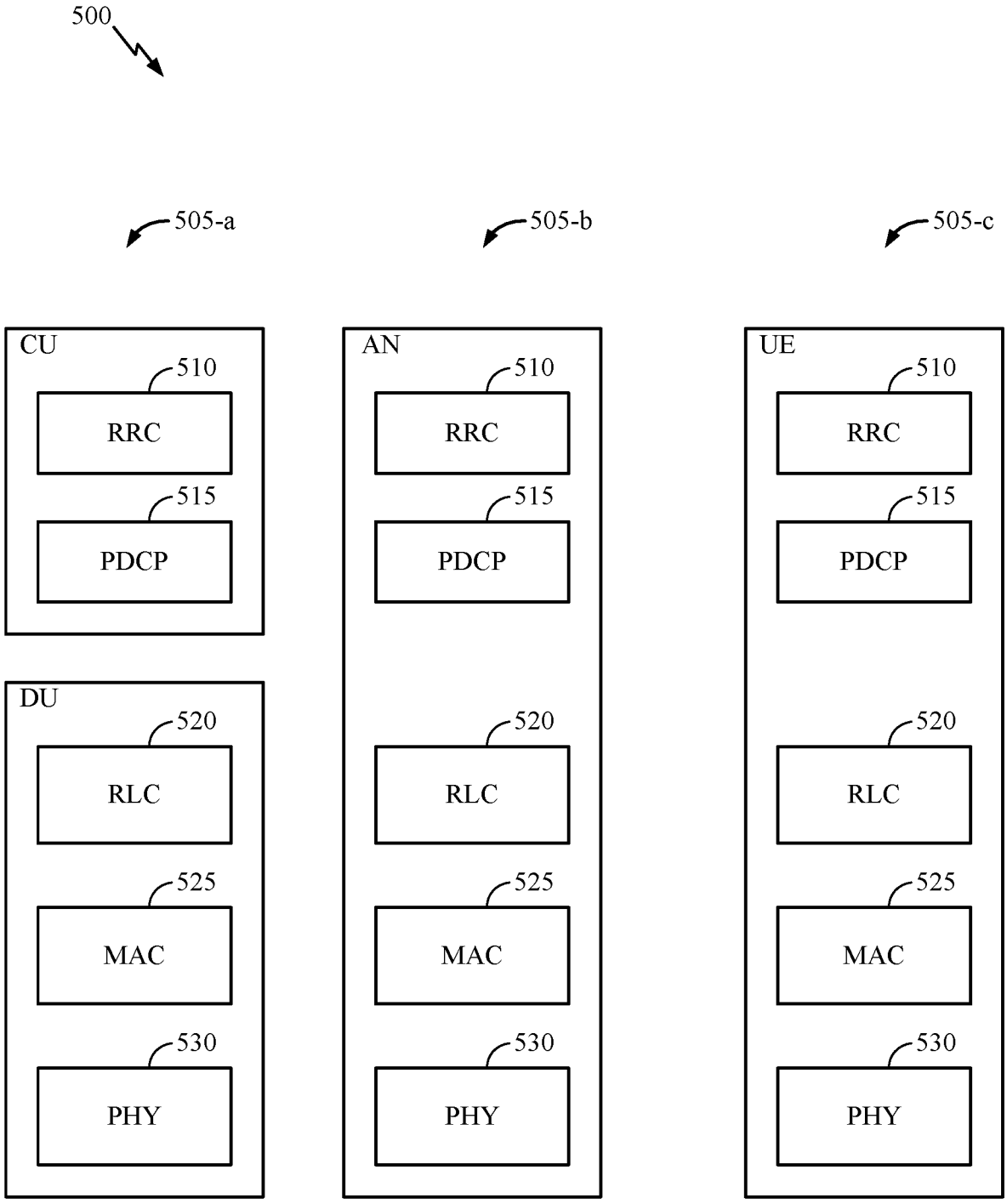

500
505-a
505-b
505-c
CU
510
RRC
515
PDCP
DU
520
RLC
525
MAC
530
PHY
AN
510
RRC
515
PDCP
520
RLC
525
MAC
530
PHY
UE
510
RRC
515
PDCP
520
RLC
525
MAC
530
PHY

FIG. 5

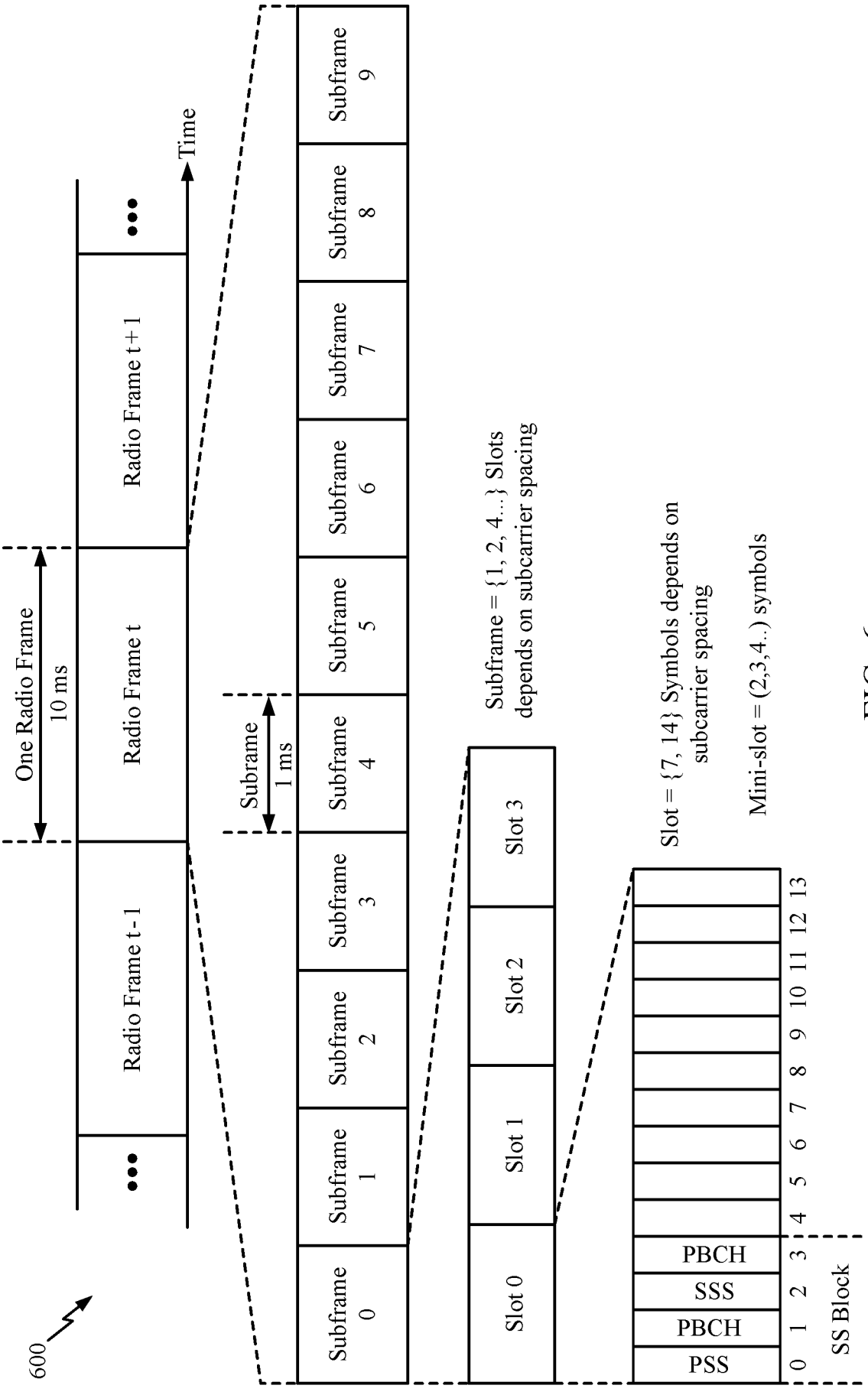

600
One Radio Frame
10 ms
Radio Frame t-1
Radio Frame t
Radio Frame t+1
Time
Subrame
1 ms
Subframe 0
Subframe 1
Subframe 2
Subframe 3
Subframe 4
Subframe 5
Subframe 6
Subframe 7
Subframe 8
Subframe 9
Subframe = {1, 2, 4...} Slots
depends on subcarrier spacing
Slot 0
Slot 1
Slot 2
Slot 3
Slot = {7, 14} Symbols depends on
subcarrier spacing
Mini-slot = (2,3,4..) symbols
PSS
PBCH
SSS
PBCH
SS Block
0 1 2 3 4 5 6 7 8 9 10 11 12 13

FIG. 6

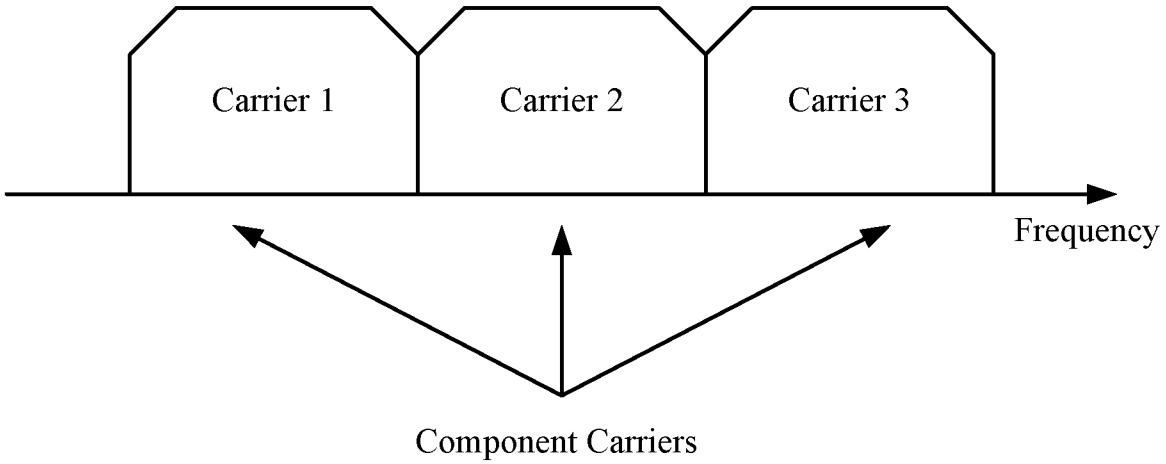

Carrier 1
Carrier 2
Carrier 3
Frequency
Component Carriers

FIG. 7

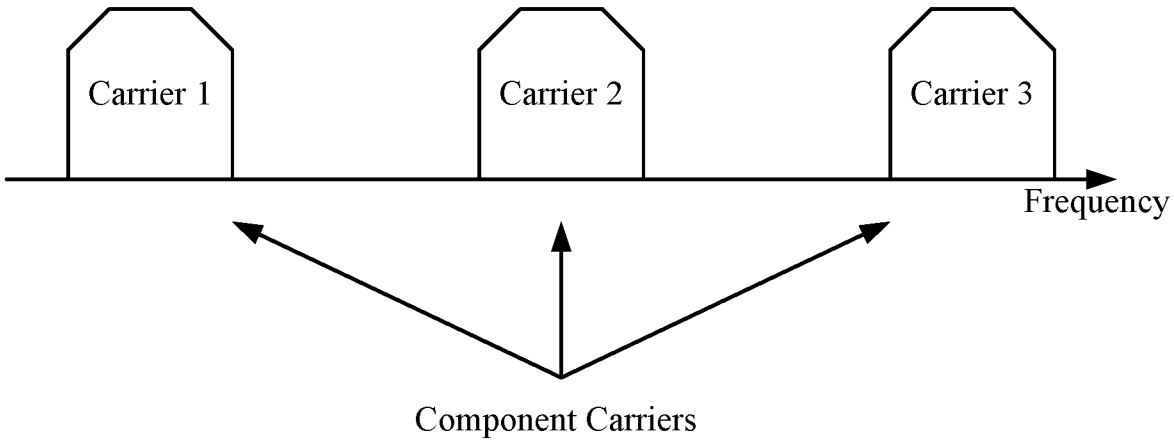

Carrier 1
Carrier 2
Carrier 3
Frequency
Component Carriers

FIG. 8

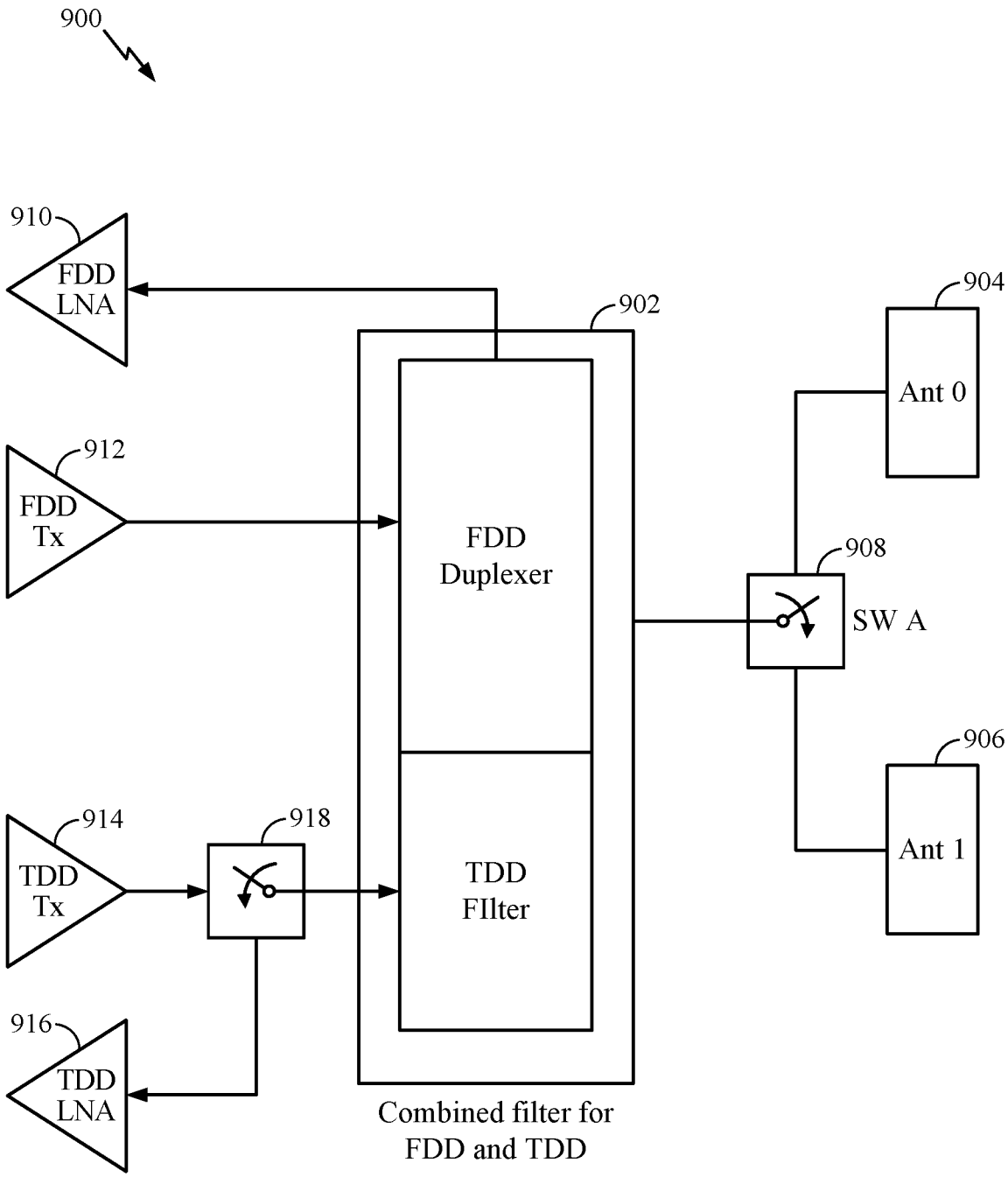

900
910
FDD
LNA
902
904
Ant 0
912
FDD
Tx
FDD
Duplexer
908
SW A
906
Ant 1
914
TDD
Tx
918
TDD
FIlter
916
TDD
LNA
Combined filter for
FDD and TDD

FIG. 9

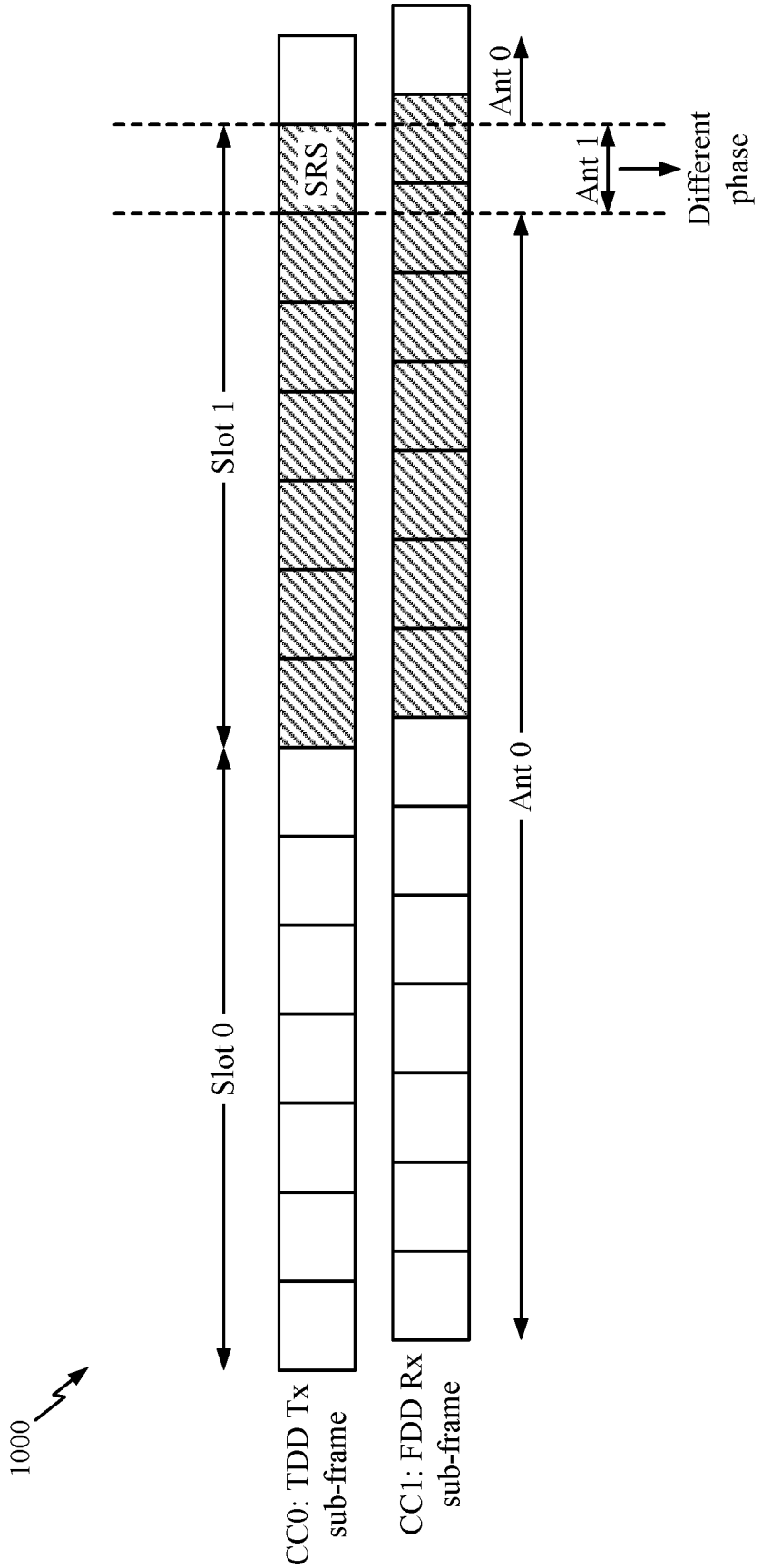

1000
CC0: TDD Tx sub-frame
CC1: FDD Rx sub-frame
Slot 0
Slot 1
SRS
Ant 0
Ant 1
Ant 0
Different phase

FIG. 10

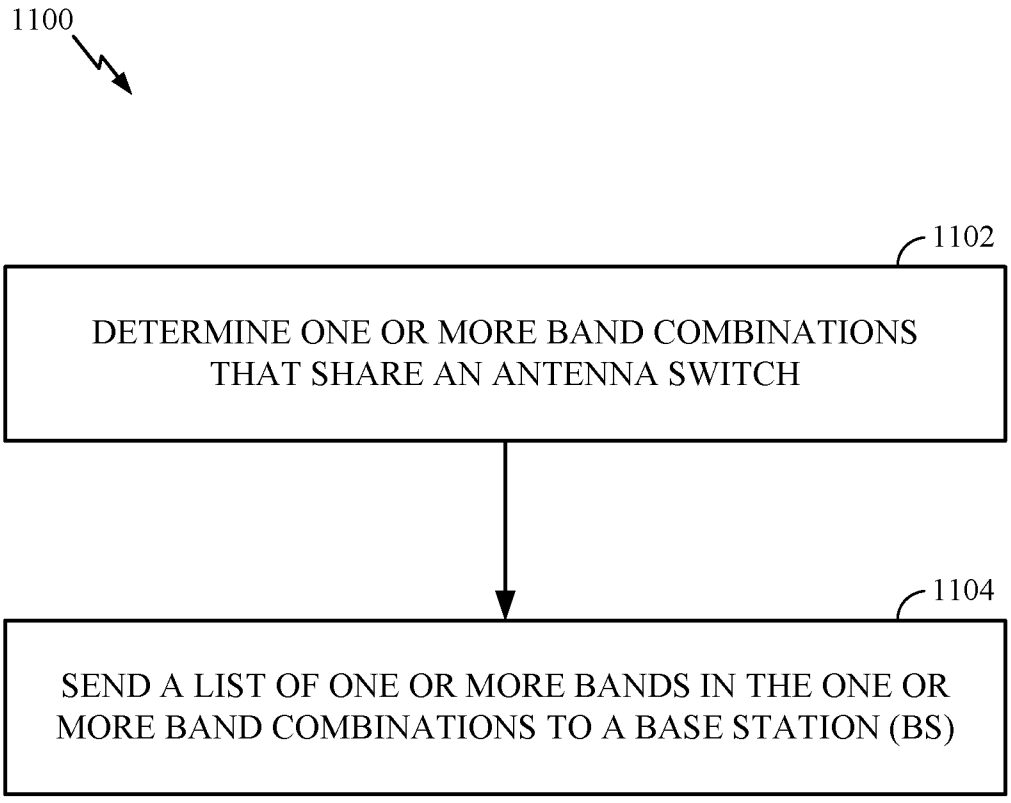

1100
1102
DETERMINE ONE OR MORE BAND COMBINATIONS THAT SHARE AN ANTENNA SWITCH
1104
SEND A LIST OF ONE OR MORE BANDS IN THE ONE OR MORE BAND COMBINATIONS TO A BASE STATION (BS)

FIG. 11

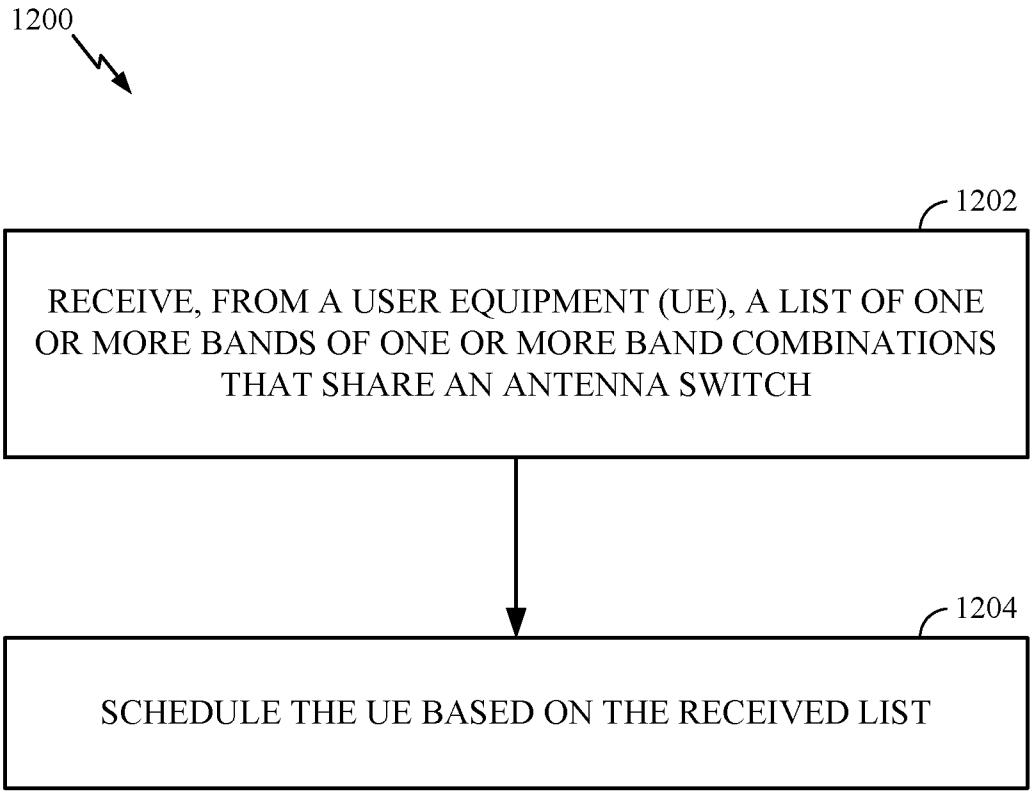

1200
1202
RECEIVE, FROM A USER EQUIPMENT (UE), A LIST OF ONE OR MORE BANDS OF ONE OR MORE BAND COMBINATIONS THAT SHARE AN ANTENNA SWITCH
1204
SCHEDULE THE UE BASED ON THE RECEIVED LIST

FIG. 12