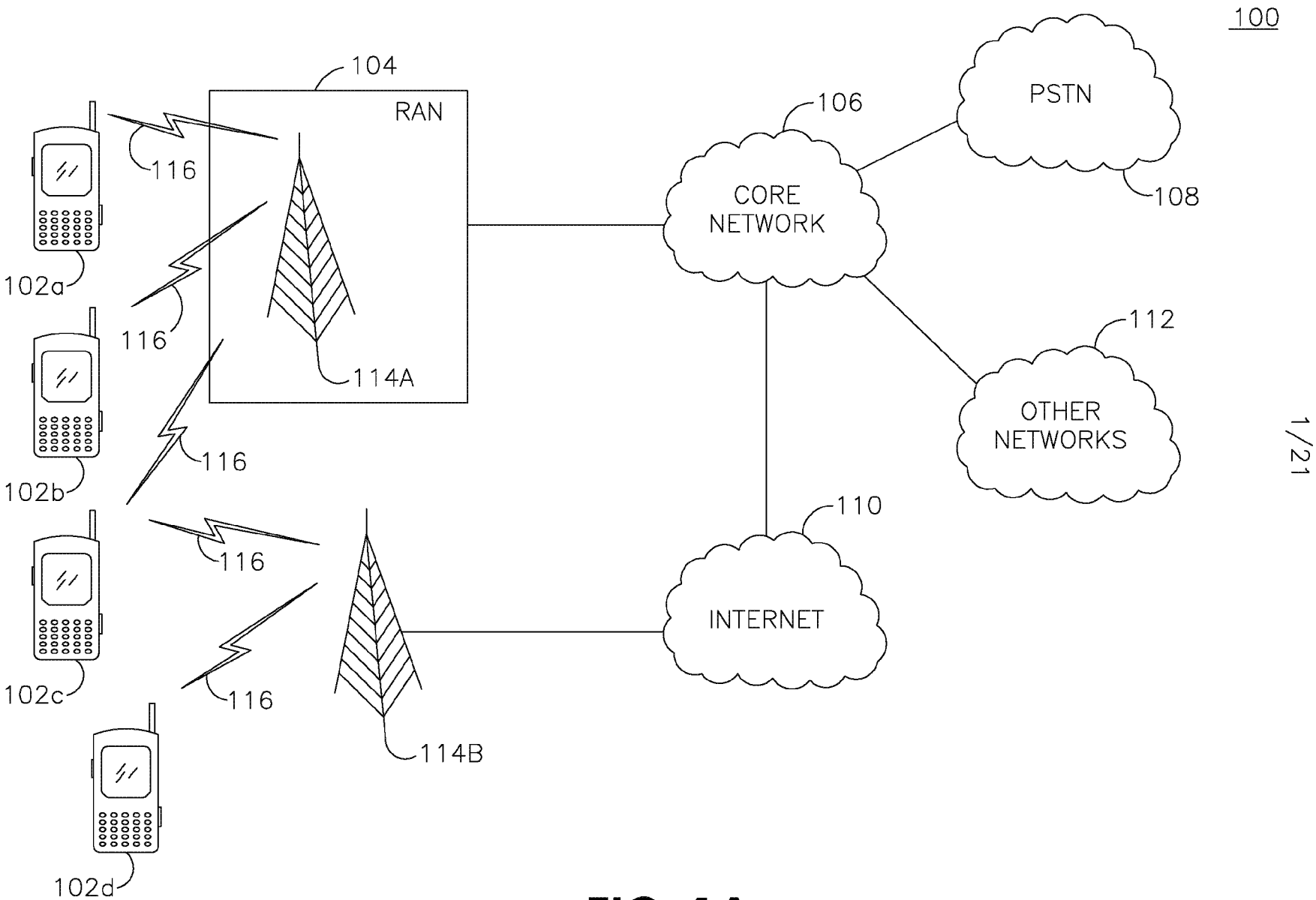

100
104
RAN
106
PSTN
108
CORE NETWORK
112
OTHER NETWORKS
110
INTERNET
114A
114B
116
102a
102b
102c
102d

FIG. 1A

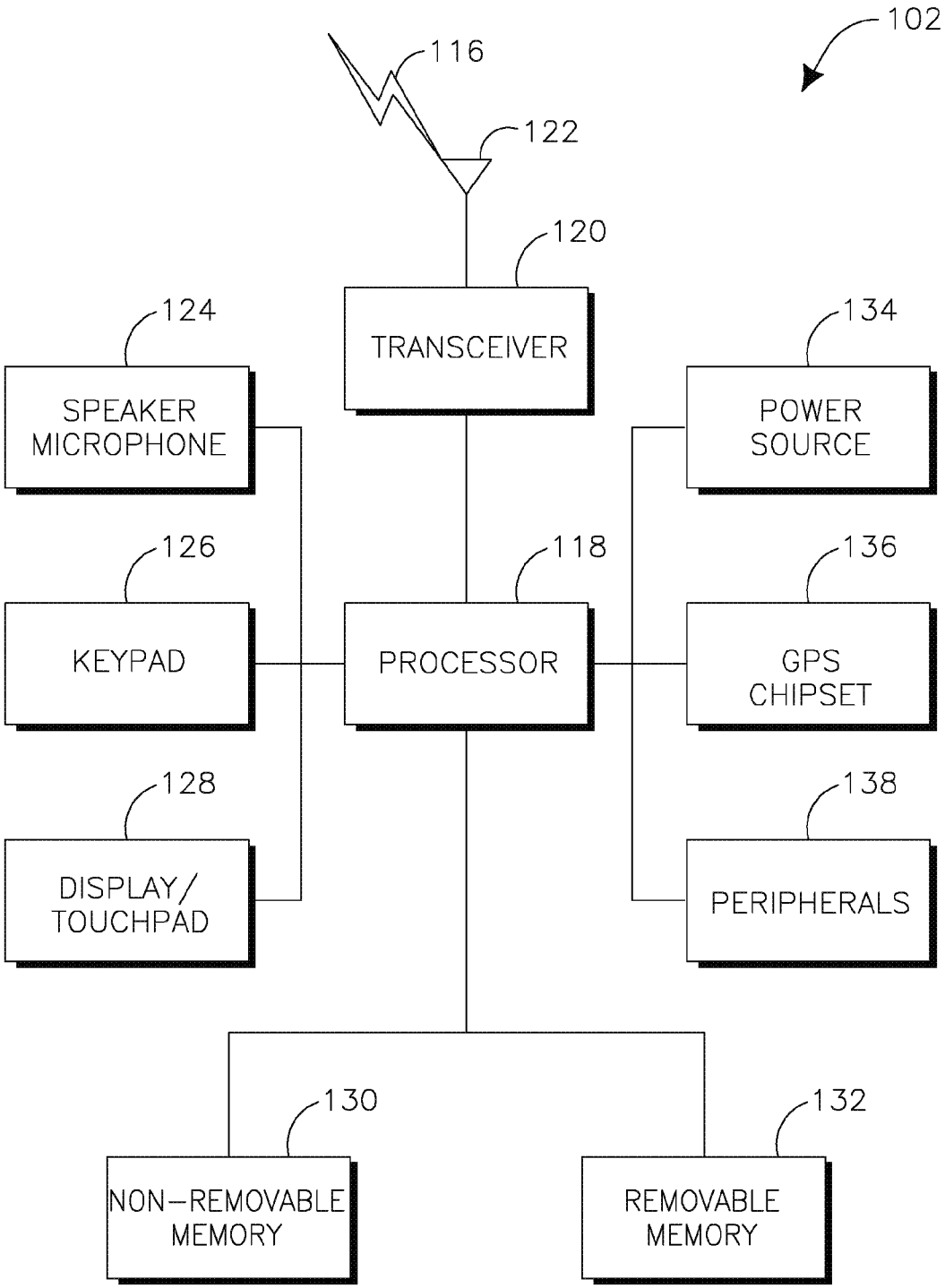

102
116
122
120
TRANSCEIVER
124
SPEAKER MICROPHONE
126
KEYPAD
128
DISPLAY/ TOUCHPAD
118
PROCESSOR
134
POWER SOURCE
136
GPS CHIPSET
138
PERIPHERALS
130
NON-REMOVABLE MEMORY
132
REMOVABLE MEMORY

FIG. 1B

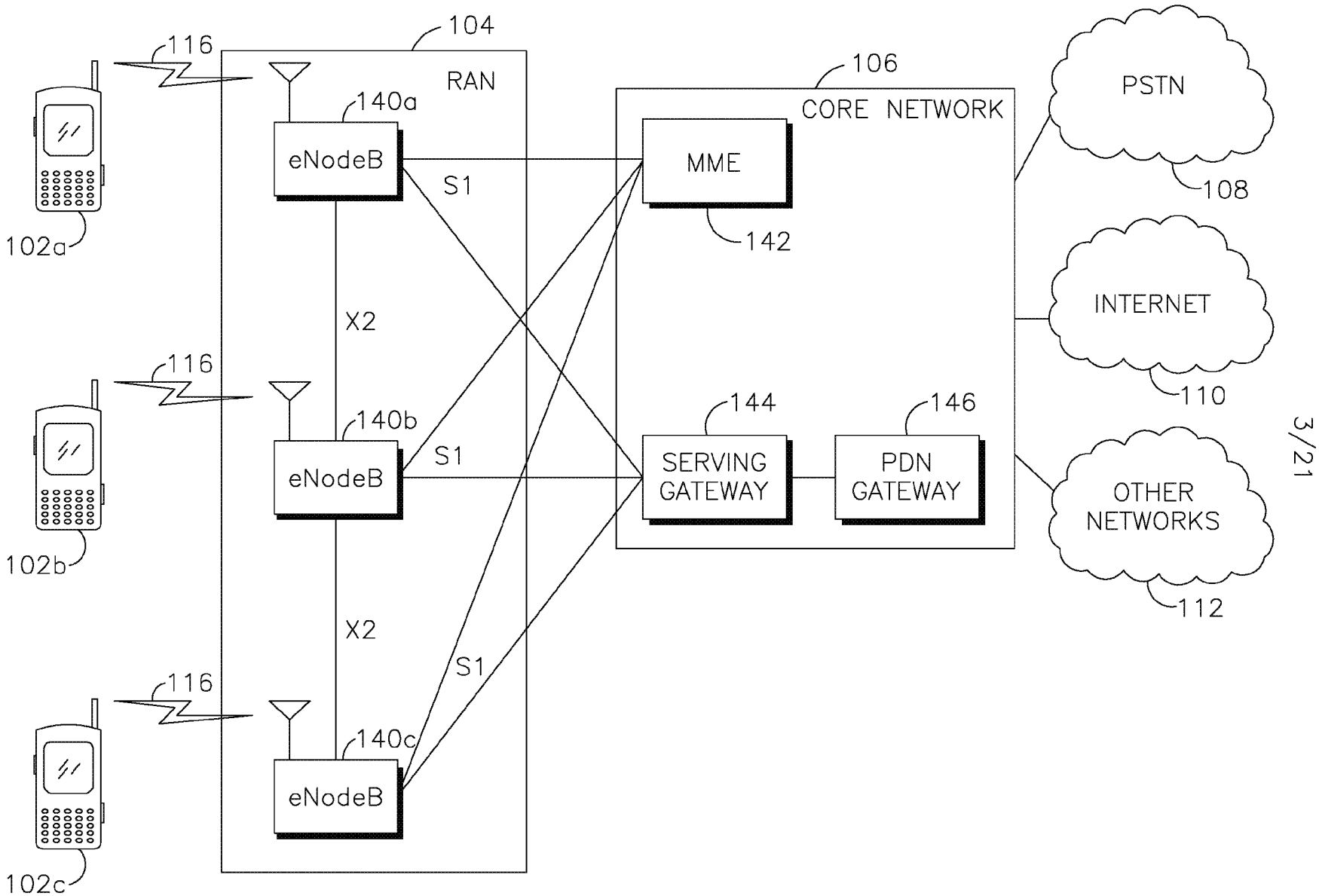

104
RAN
116
116
116
140a
140b
140c
eNodeB
eNodeB
eNodeB
S1
S1
S1
X2
X2
102a
102b
102c
106
CORE NETWORK
MME
142
SERVING GATEWAY
144
PDN GATEWAY
146
PSTN
108
INTERNET
110
OTHER NETWORKS
112

FIG. 1C

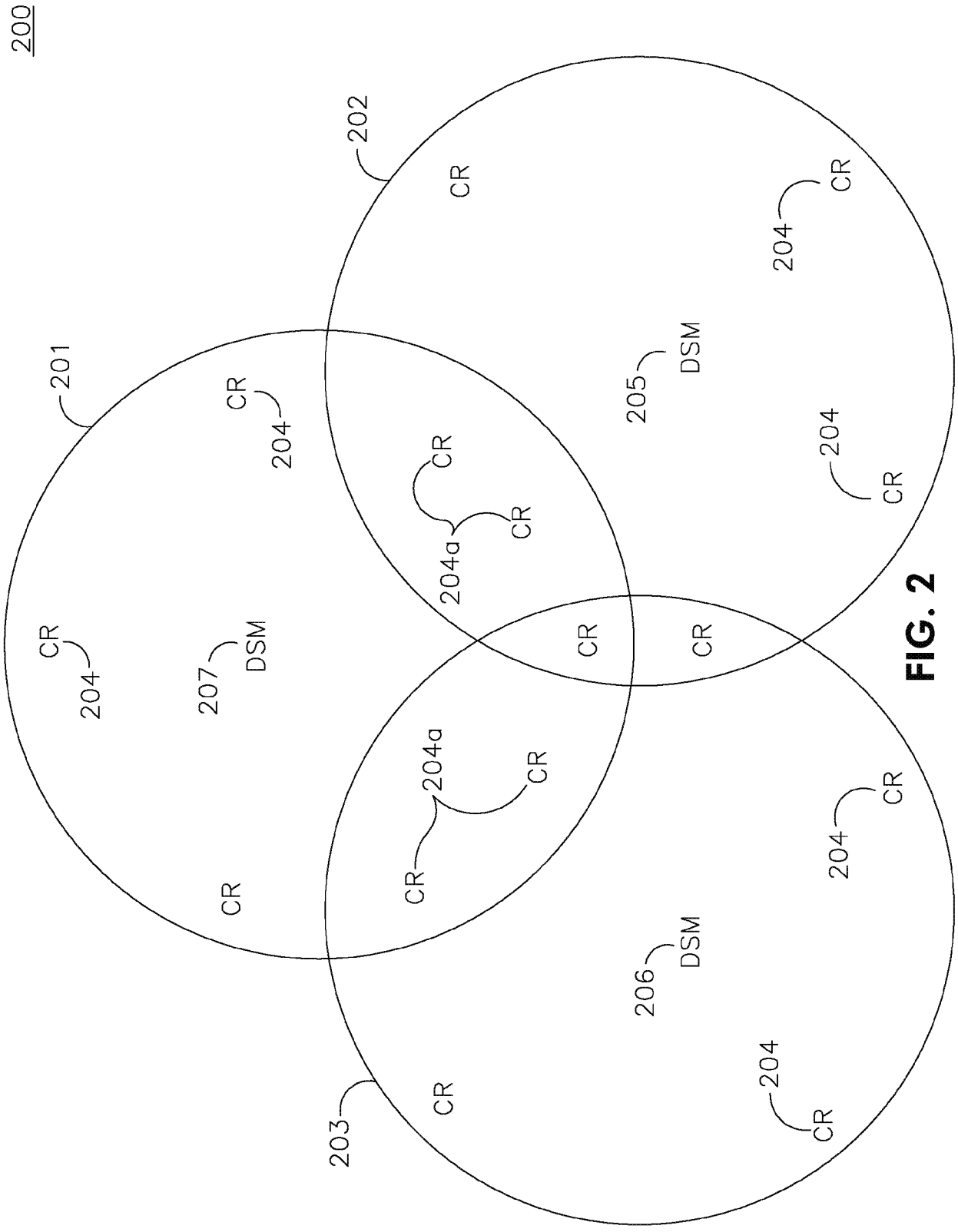


FIG. 2

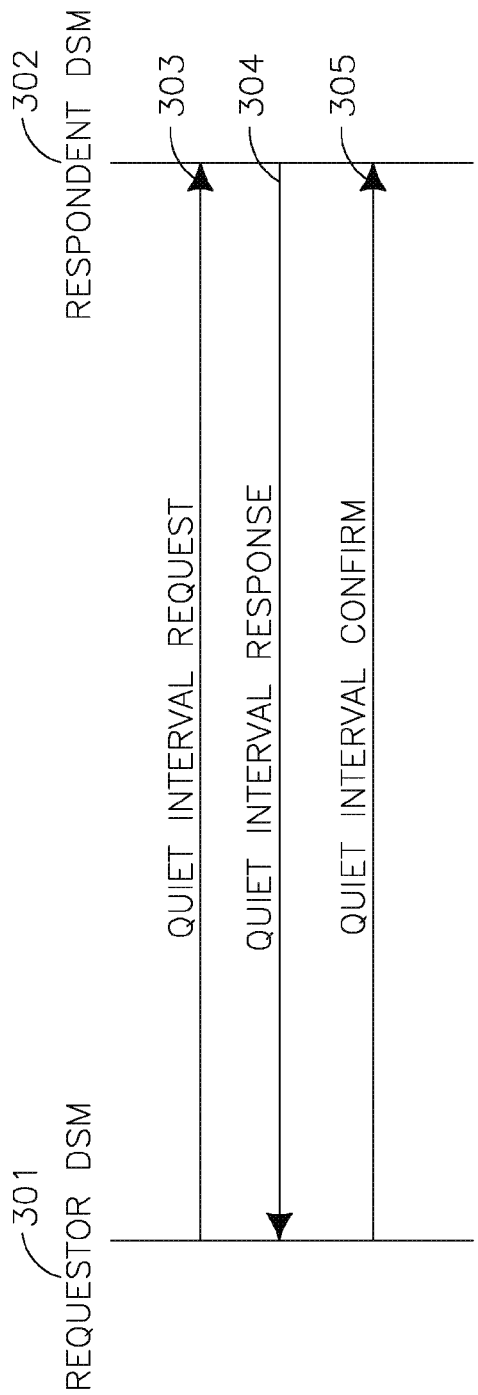

302
RESPONDENT DSM
303
304
305
QUIET INTERVAL REQUEST
QUIET INTERVAL RESPONSE
QUIET INTERVAL CONFIRM
301
REQUESTOR DSM

FIG. 3

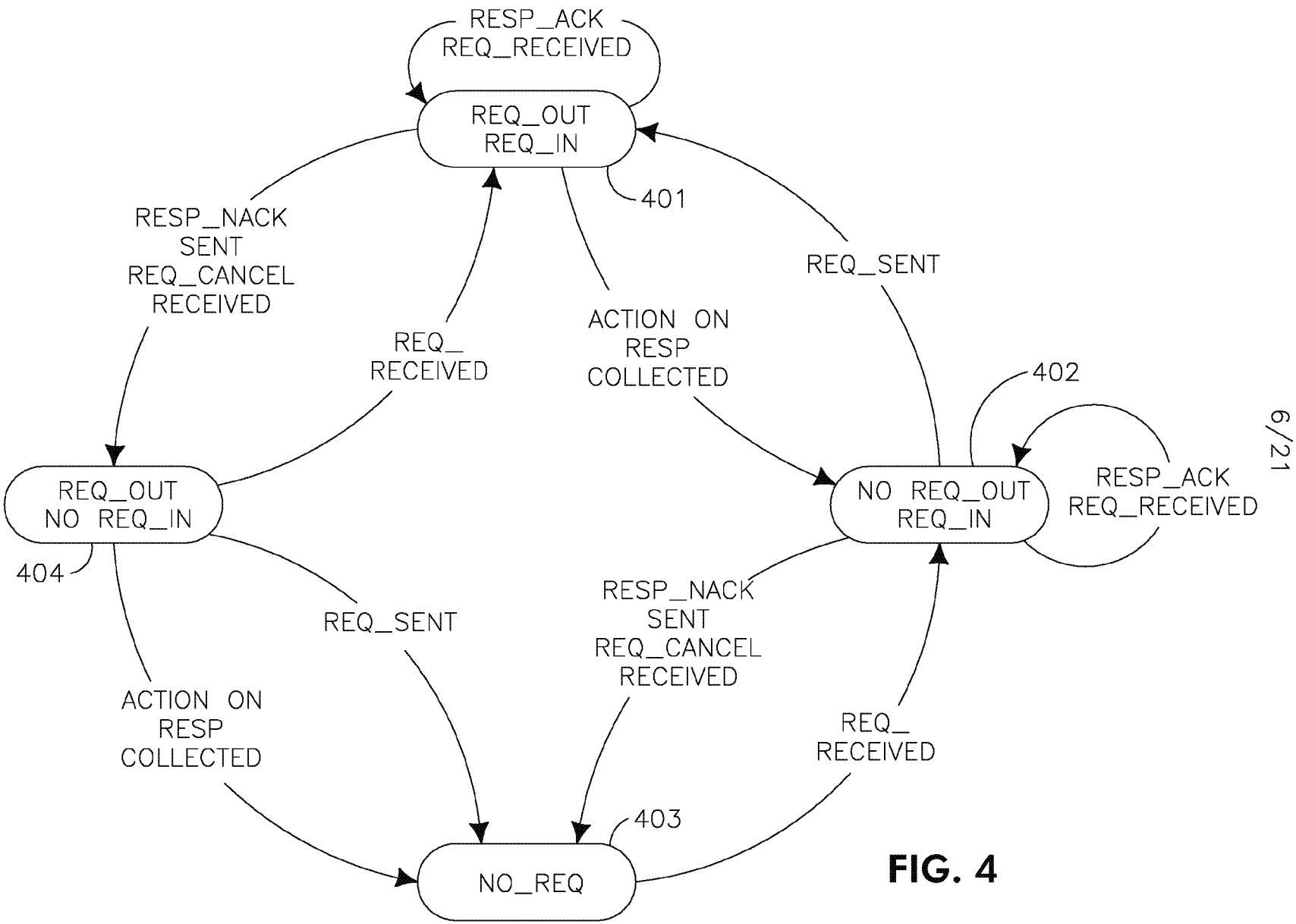

RESP_ACK
REQ_RECEIVED
REQ_OUT
REQ_IN
401
RESP_NACK
SENT
REQ_CANCEL
RECEIVED
REQ_
RECEIVED
ACTION ON
RESP
COLLECTED
REQ_SENT
402
REQ_OUT
NO REQ_IN
NO REQ_OUT
REQ_IN
RESP_ACK
REQ_RECEIVED
404
REQ_SENT
RESP_NACK
SENT
REQ_CANCEL
RECEIVED
ACTION ON
RESP
COLLECTED
REQ_
RECEIVED
403
NO_REQ

FIG. 4

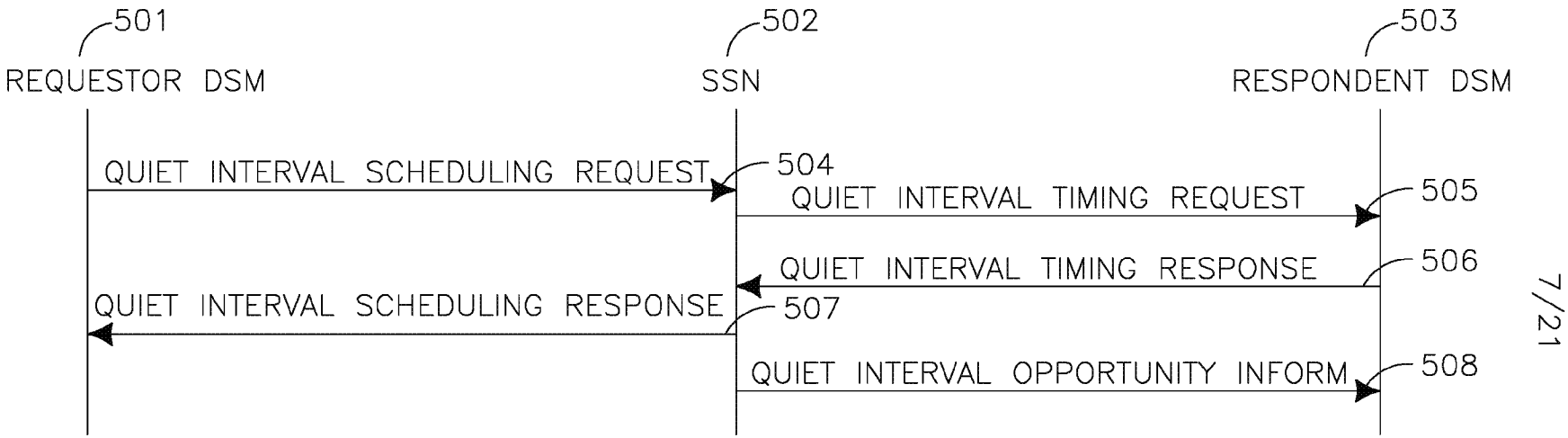

501
REQUESTOR DSM
502
SSN
503
RESPONDENT DSM
QUIET INTERVAL SCHEDULING REQUEST
504
QUIET INTERVAL TIMING REQUEST
505
QUIET INTERVAL TIMING RESPONSE
506
QUIET INTERVAL SCHEDULING RESPONSE
507
QUIET INTERVAL OPPORTUNITY INFORM
508

FIG. 5

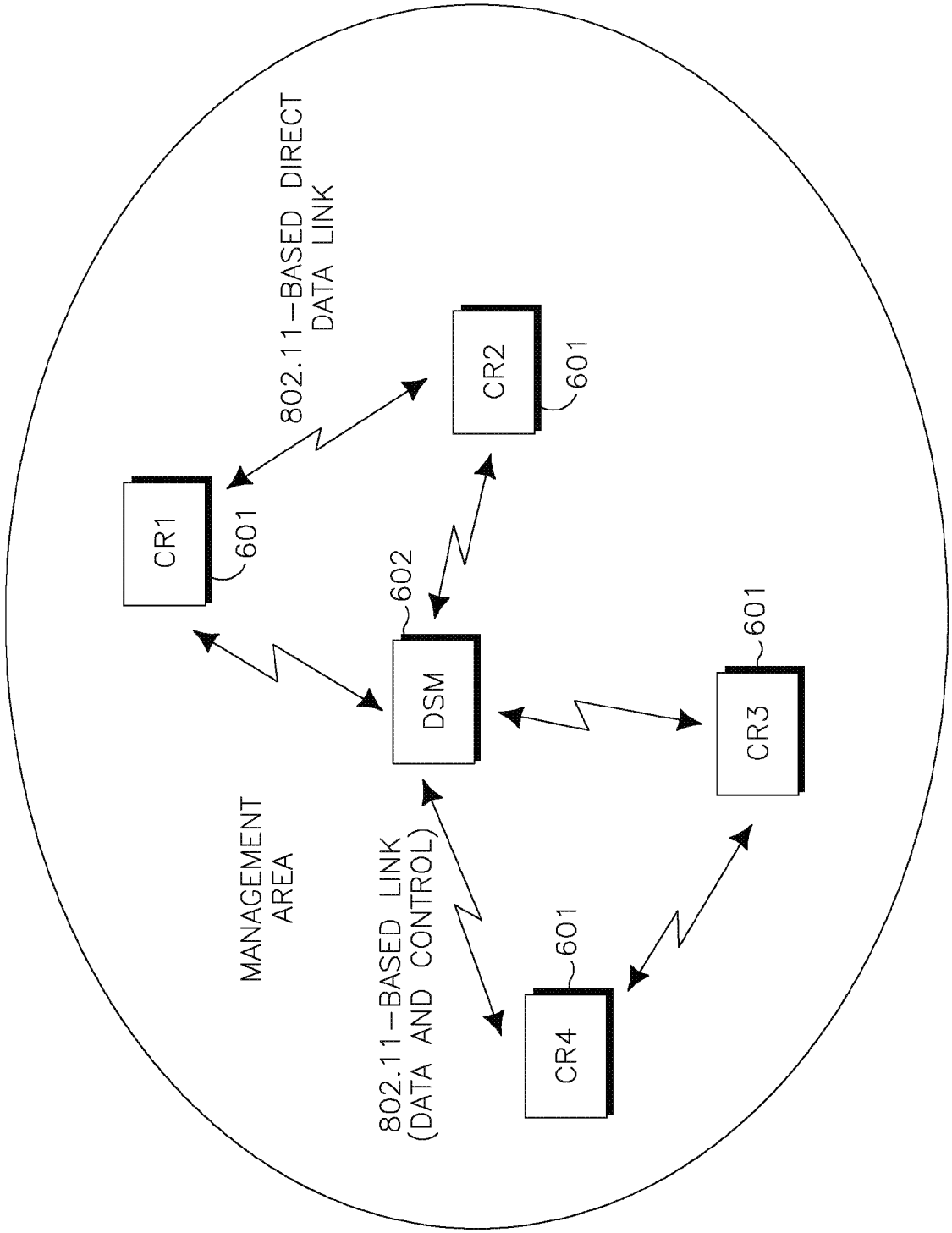

802.11-BASED DIRECT
DATA LINK
CR1
601
CR2
601
602
DSM
CR3
601
MANAGEMENT
AREA
802.11-BASED LINK
(DATA AND CONTROL)
CR4
601

FIG. 6

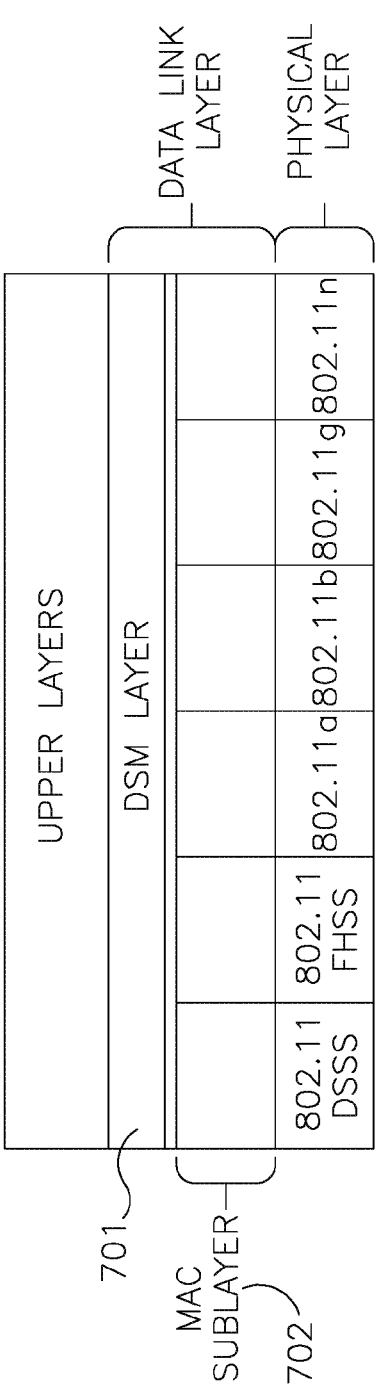

UPPER LAYERS
DSM LAYER
DATA LINK LAYER
PHYSICAL LAYER
802.11 DSSS
802.11 FHSS
802.11a
802.11b
802.11g
802.11n
701
MAC SUBLAYER
702

FIG. 7

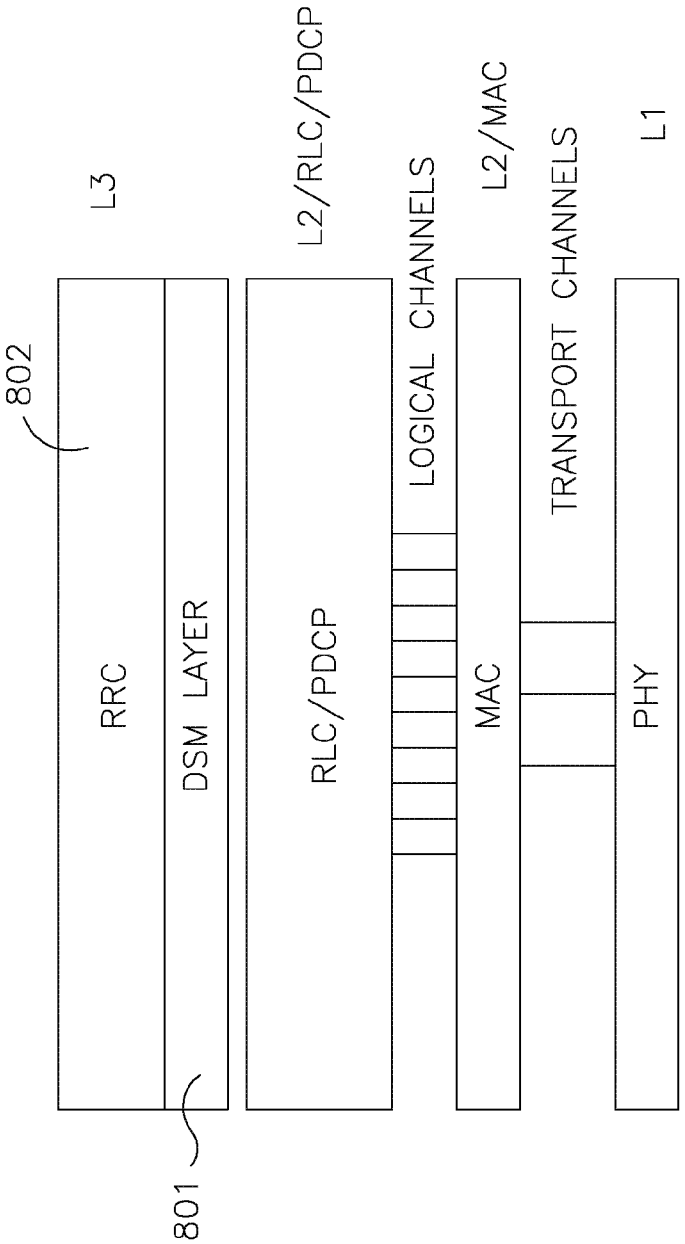

L3
L2/RLC/PDCP
L2/MAC
L1
802
RRC
DSM LAYER
RLC/PDCP
MAC
PHY
LOGICAL CHANNELS
TRANSPORT CHANNELS
801

FIG. 8

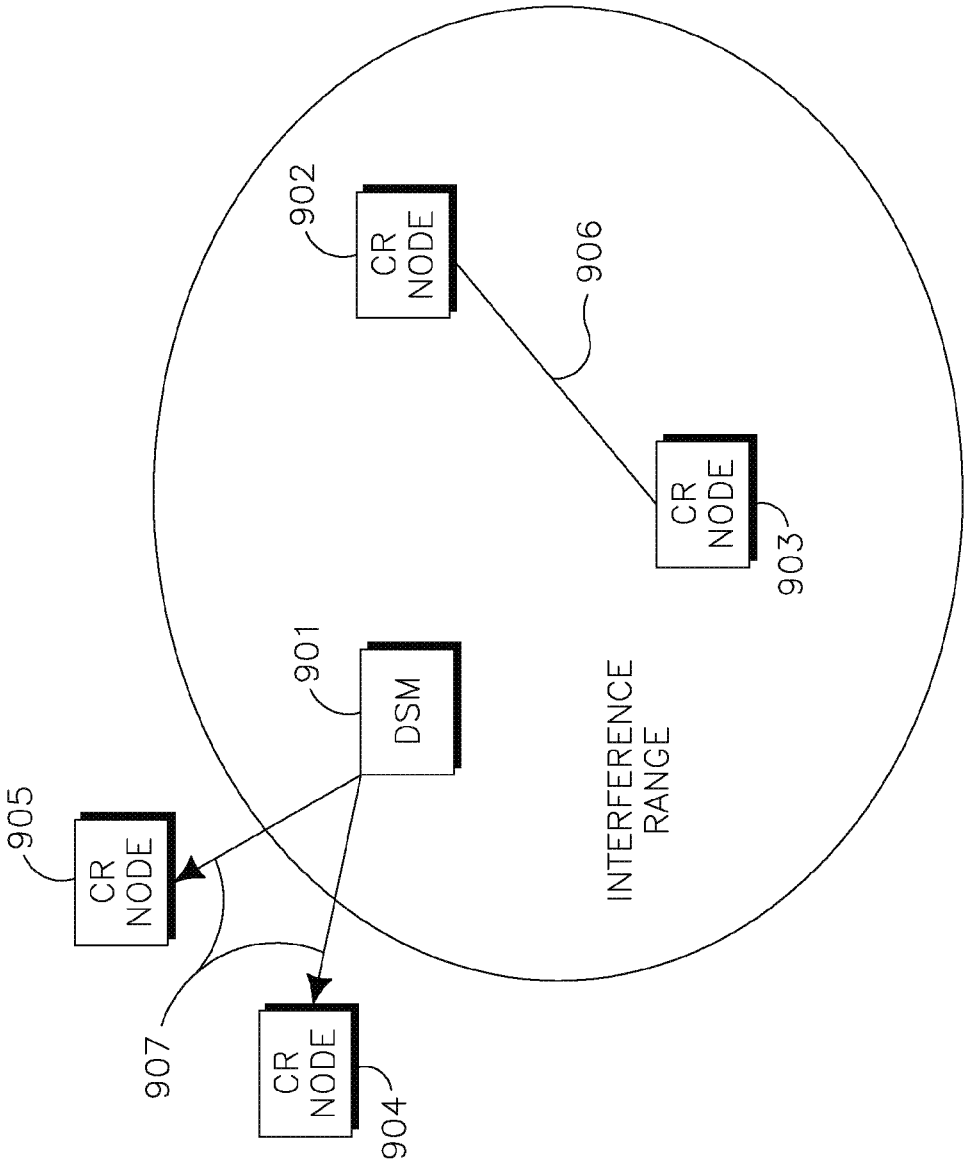

902
CR NODE
906
CR NODE
903
901
DSM
INTERFERENCE RANGE
905
CR NODE
907
CR NODE
904

FIG. 9

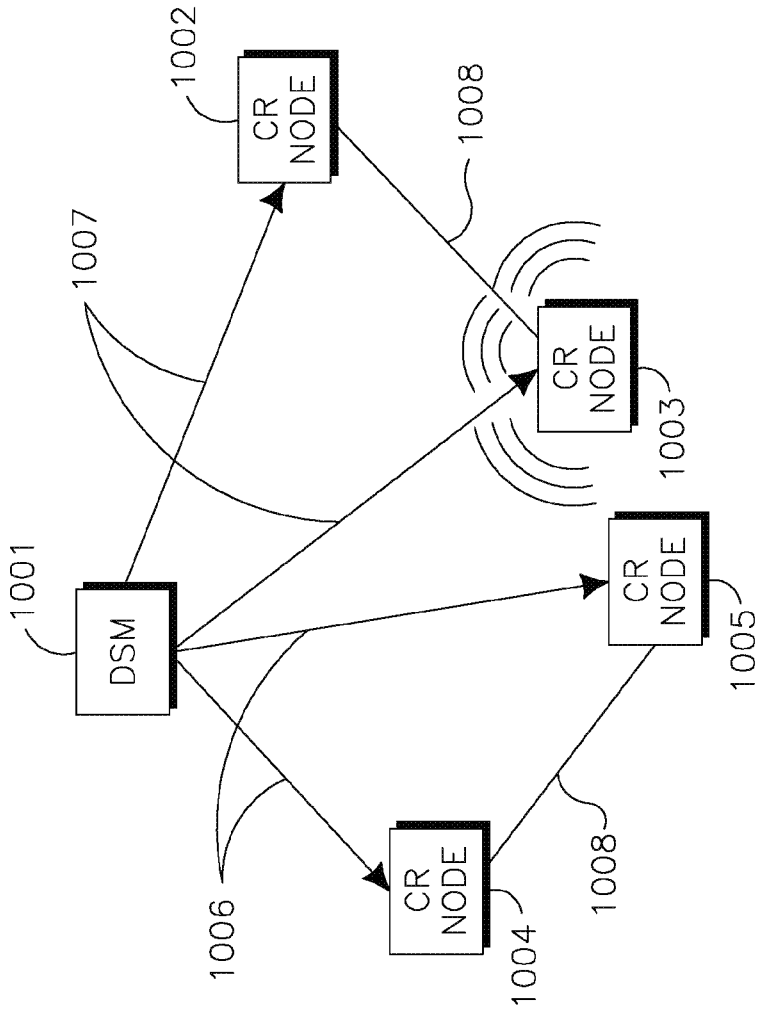

DSM
1001
CR NODE
1002
CR NODE
1003
CR NODE
1004
CR NODE
1005
1006
1007
1008
1008

FIG. 10

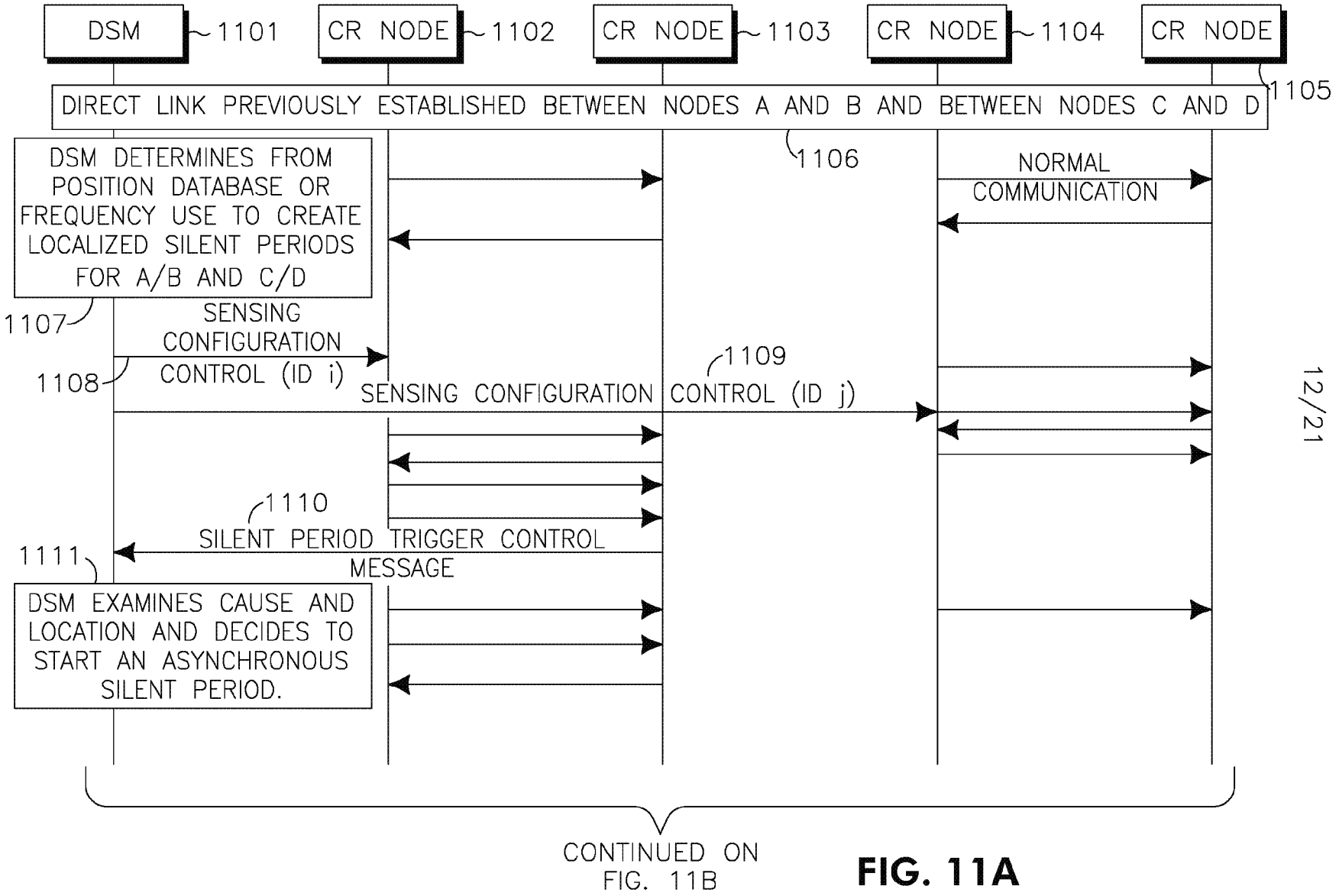

DSM
1101
CR NODE
1102
CR NODE
1103
CR NODE
1104
CR NODE
1105
DIRECT LINK PREVIOUSLY ESTABLISHED BETWEEN NODES A AND B AND BETWEEN NODES C AND D
1106
DSM DETERMINES FROM POSITION DATABASE OR FREQUENCY USE TO CREATE LOCALIZED SILENT PERIODS FOR A/B AND C/D
1107
NORMAL COMMUNICATION
SENSING CONFIGURATION CONTROL (ID i)
1108
1109
SENSING CONFIGURATION CONTROL (ID j)
1110
SILENT PERIOD TRIGGER CONTROL MESSAGE
1111
DSM EXAMINES CAUSE AND LOCATION AND DECIDES TO START AN ASYNCHRONOUS SILENT PERIOD.
CONTINUED ON FIG. 11B

FIG. 11A

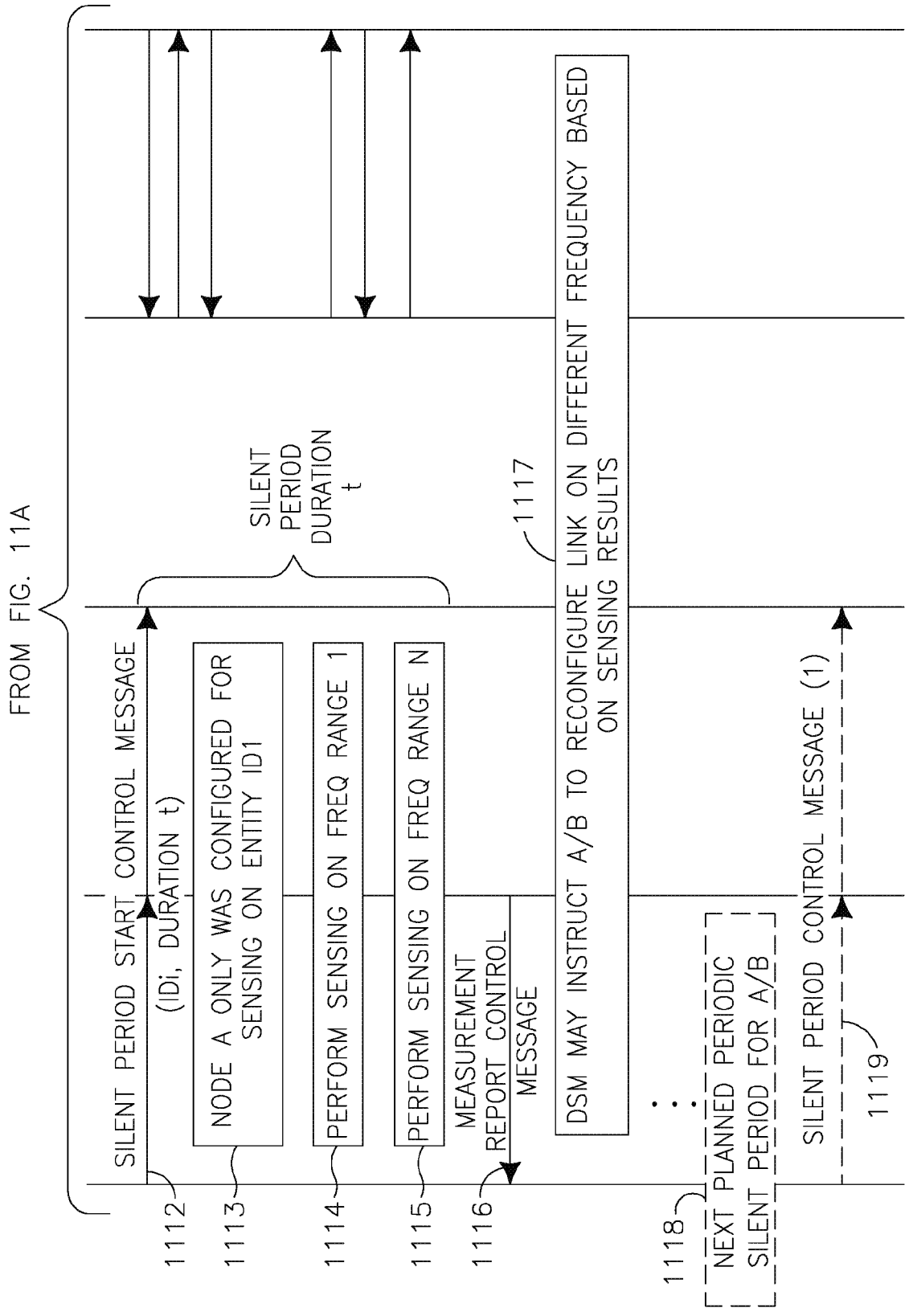

FROM FIG. 11A
SILENT PERIOD START CONTROL MESSAGE
(IDi, DURATION t)
NODE A ONLY WAS CONFIGURED FOR SENSING ON ENTITY ID1
PERFORM SENSING ON FREQ RANGE 1
PERFORM SENSING ON FREQ RANGE N
MEASUREMENT REPORT CONTROL MESSAGE
DSM MAY INSTRUCT A/B TO RECONFIGURE LINK ON DIFFERENT FREQUENCY BASED ON SENSING RESULTS
SILENT PERIOD DURATION t
1117
NEXT PLANNED PERIODIC SILENT PERIOD FOR A/B
SILENT PERIOD CONTROL MESSAGE (1)
1112
1113
1114
1115
1116
1118
1119

FIG. 11B

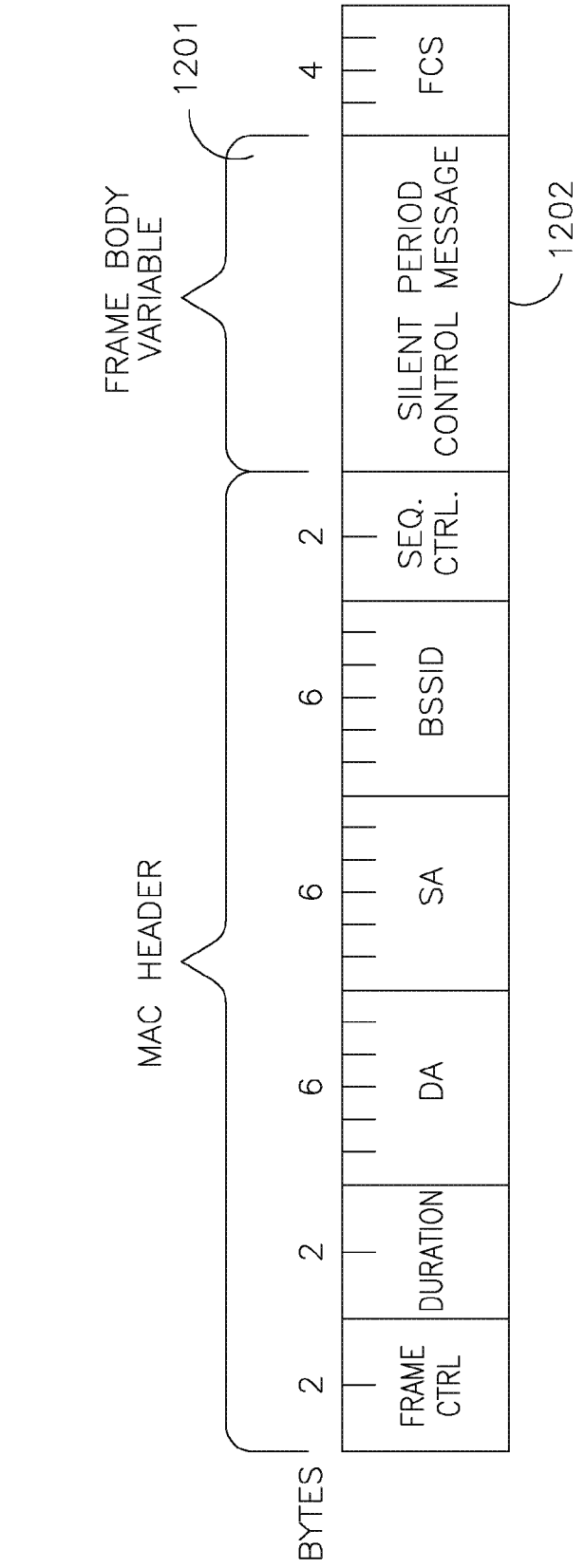

MAC HEADER
FRAME BODY VARIABLE
1201
1202
BYTES
2
2
6
6
6
2
4
FRAME CTRL
DURATION
DA
SA
BSSID
SEQ. CTRL.
SILENT PERIOD CONTROL MESSAGE
FCS

FIG. 12

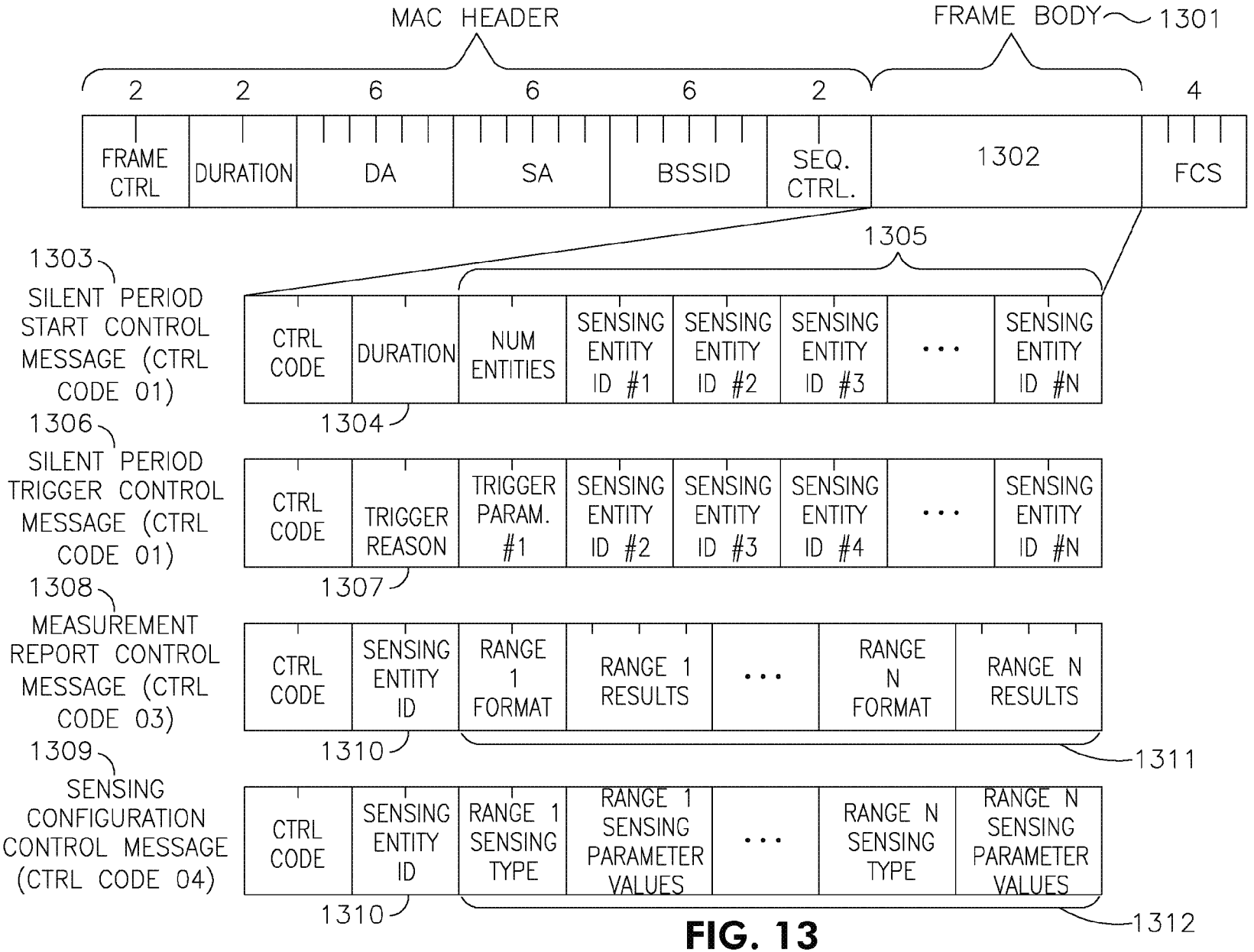

MAC HEADER
FRAME BODY
1301
2
2
6
6
6
2
4
FRAME CTRL
DURATION
DA
SA
BSSID
SEQ. CTRL.
1302
FCS
1305
1303
SILENT PERIOD START CONTROL MESSAGE (CTRL CODE 01)
CTRL CODE
DURATION
NUM ENTITIES
SENSING ENTITY ID #1
SENSING ENTITY ID #2
SENSING ENTITY ID #3
• • •
SENSING ENTITY ID #N
1304
1306
SILENT PERIOD TRIGGER CONTROL MESSAGE (CTRL CODE 01)
CTRL CODE
TRIGGER REASON
TRIGGER PARAM. #1
SENSING ENTITY ID #2
SENSING ENTITY ID #3
SENSING ENTITY ID #4
• • •
SENSING ENTITY ID #N
1307
1308
MEASUREMENT REPORT CONTROL MESSAGE (CTRL CODE 03)
CTRL CODE
SENSING ENTITY ID
RANGE 1 FORMAT
RANGE 1 RESULTS
• • •
RANGE N FORMAT
RANGE N RESULTS
1310
1311
1309
SENSING CONFIGURATION CONTROL MESSAGE (CTRL CODE 04)
CTRL CODE
SENSING ENTITY ID
RANGE 1 SENSING TYPE
RANGE 1 SENSING PARAMETER VALUES
• • •
RANGE N SENSING TYPE
RANGE N SENSING PARAMETER VALUES
1310
1312

FIG. 13

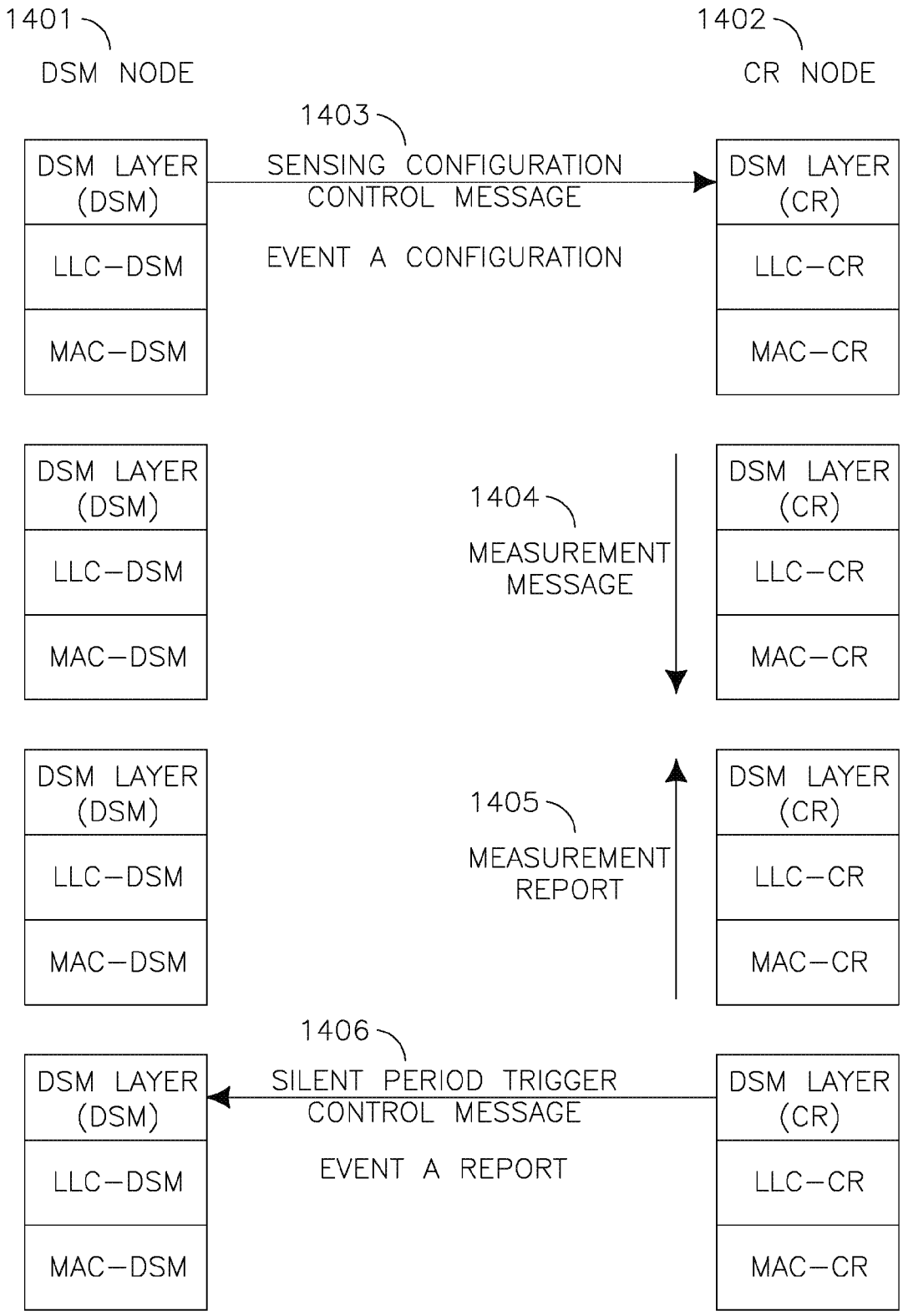

1401
DSM NODE
1402
CR NODE
1403
SENSING CONFIGURATION CONTROL MESSAGE
EVENT A CONFIGURATION
DSM LAYER (DSM)
LLC–DSM
MAC–DSM
DSM LAYER (CR)
LLC–CR
MAC–CR
1404
MEASUREMENT MESSAGE
1405
MEASUREMENT REPORT
1406
SILENT PERIOD TRIGGER CONTROL MESSAGE
EVENT A REPORT

FIG. 14

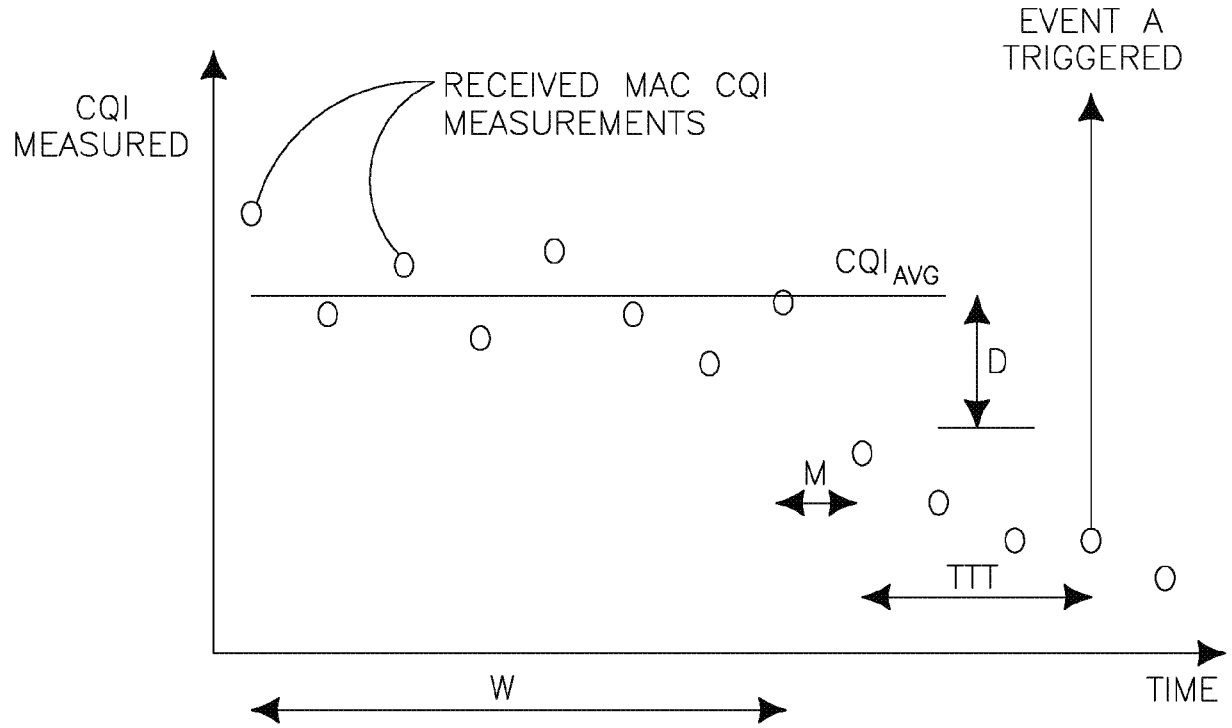

EVENT A
TRIGGERED
CQI
MEASURED
RECEIVED MAC CQI
MEASUREMENTS
CQI AVG
D
M
TTT
W
TIME

FIG. 15

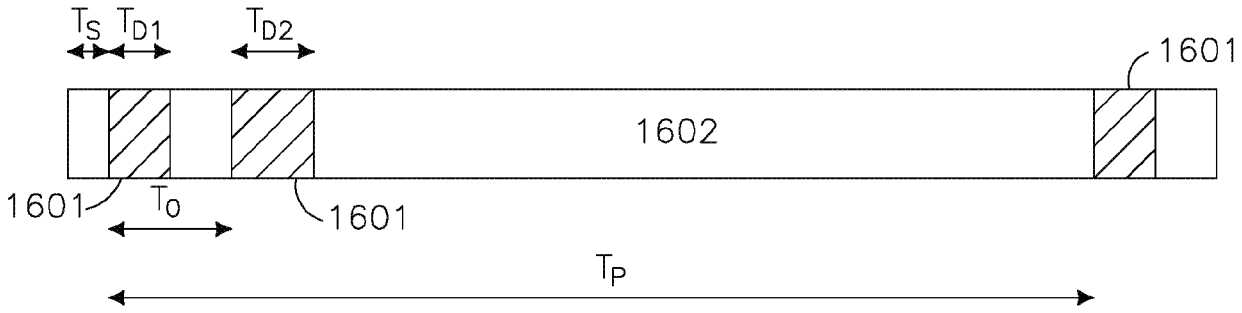

TS
TD1
TD2
1601
1602
1601
TO
1601
TP

FIG. 16

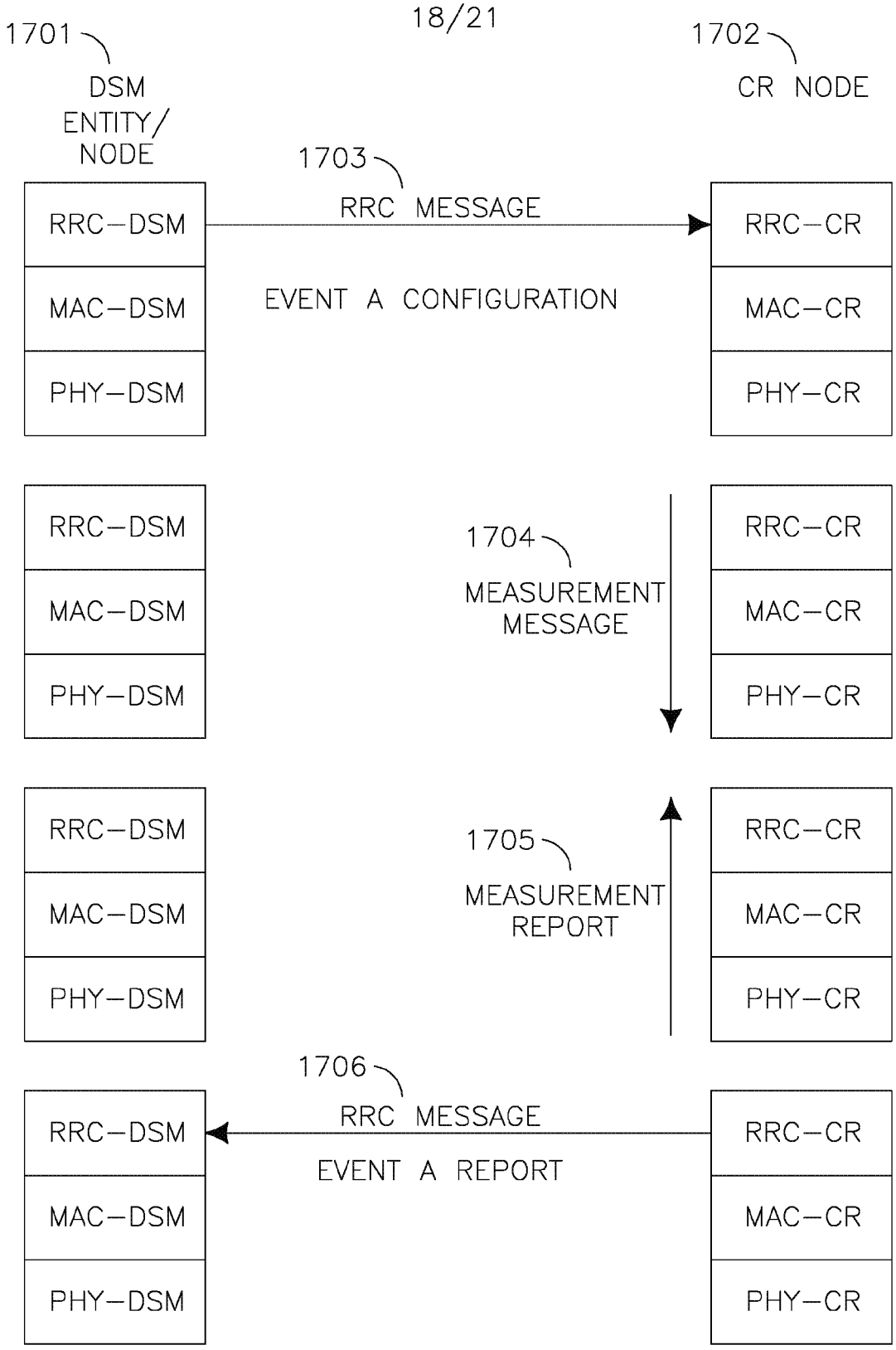

1701
DSM ENTITY/ NODE
1702
CR NODE
1703
RRC MESSAGE
EVENT A CONFIGURATION
RRC-DSM
MAC-DSM
PHY-DSM
RRC-CR
MAC-CR
PHY-CR
1704
MEASUREMENT MESSAGE
1705
MEASUREMENT REPORT
1706
RRC MESSAGE
EVENT A REPORT

FIG. 17

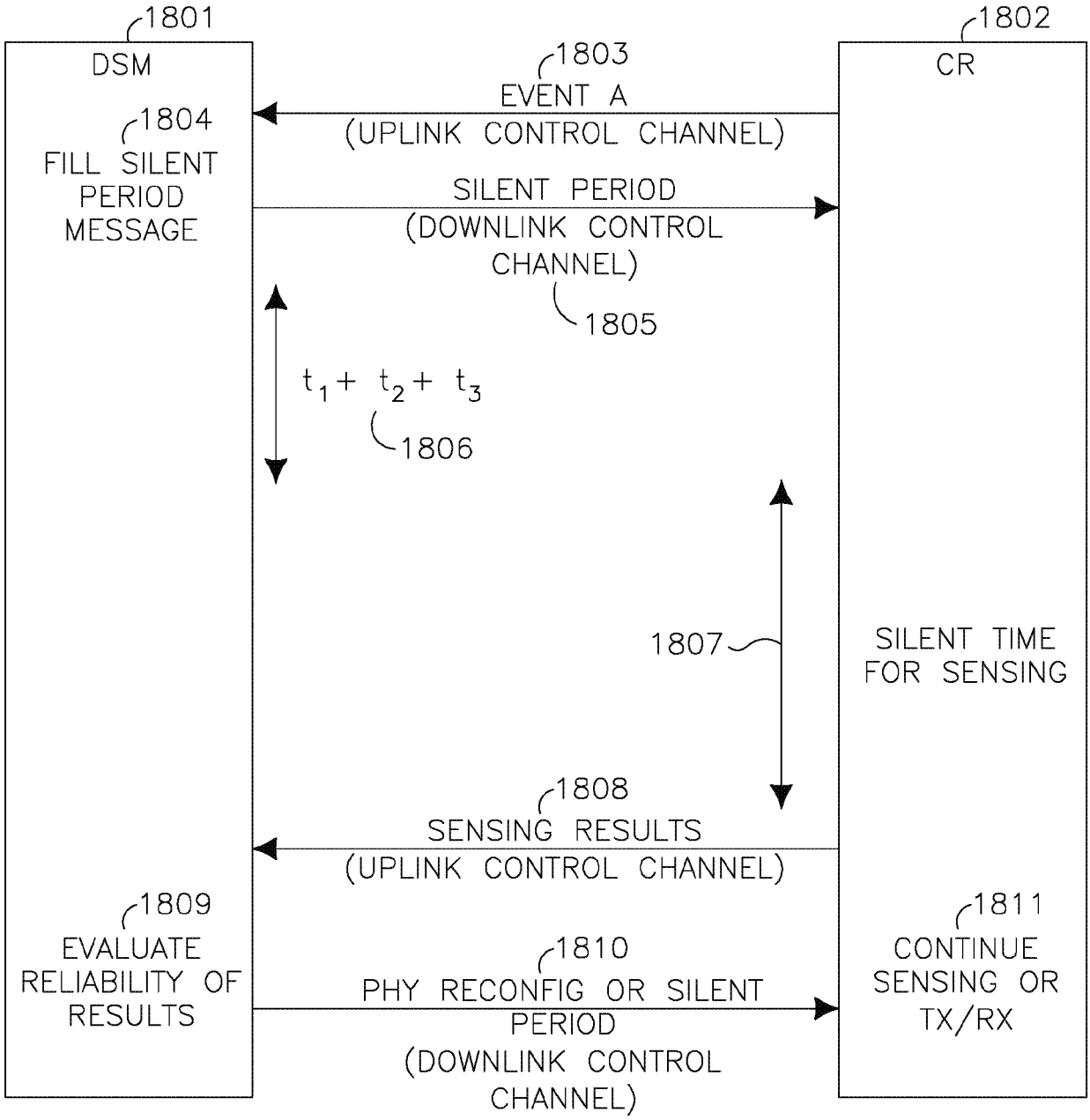

1801
DSM
1802
CR
1803
EVENT A
(UPLINK CONTROL CHANNEL)
1804
FILL SILENT PERIOD MESSAGE
SILENT PERIOD
(DOWNLINK CONTROL CHANNEL)
1805
$t_1 + t_2 + t_3$
1806
1807
SILENT TIME FOR SENSING
1808
SENSING RESULTS
(UPLINK CONTROL CHANNEL)
1809
EVALUATE RELIABILITY OF RESULTS
1810
PHY RECONFIG OR SILENT PERIOD
(DOWNLINK CONTROL CHANNEL)
1811
CONTINUE SENSING OR TX/RX

FIG. 18

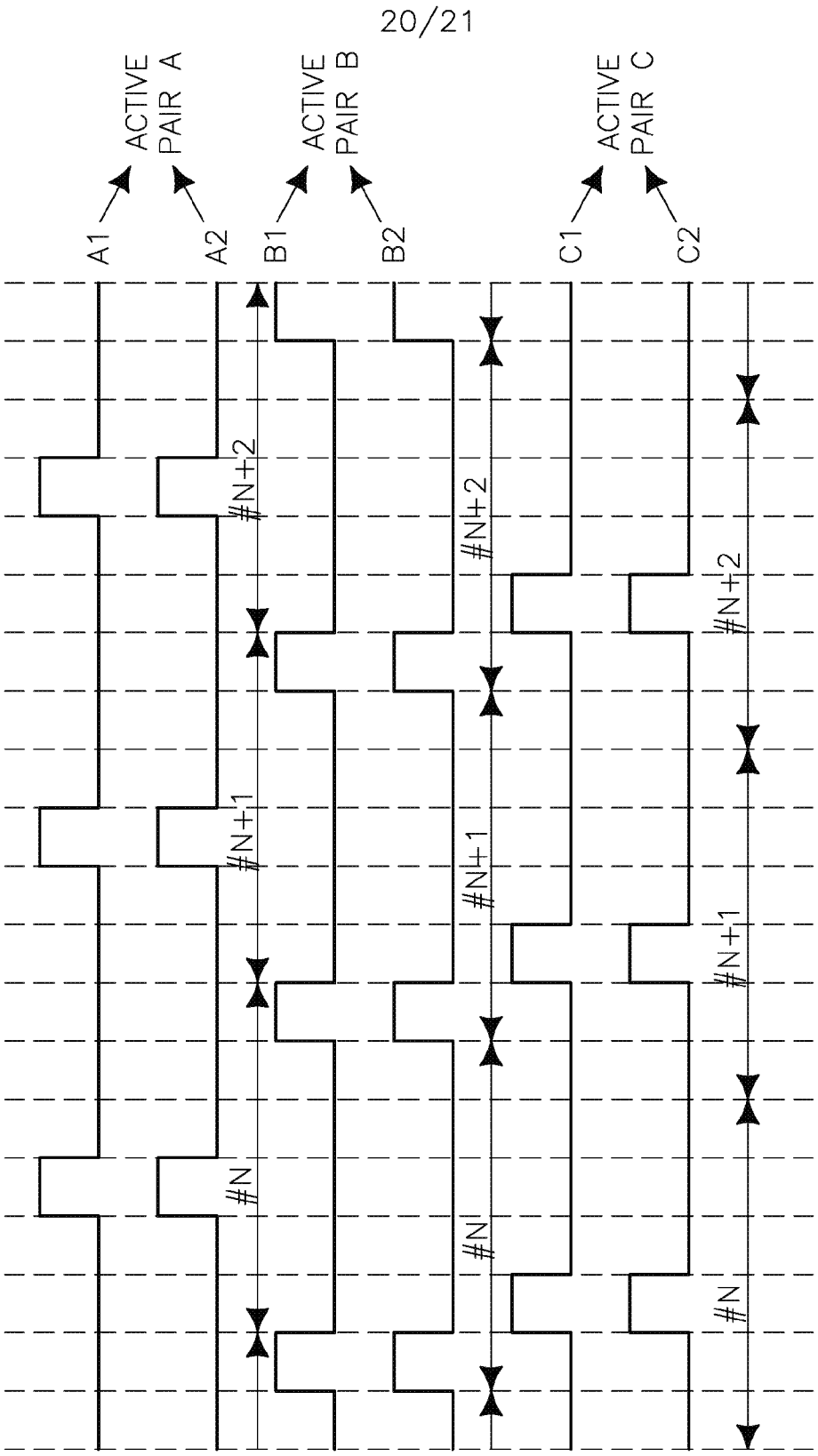

ACTIVE PAIR A
ACTIVE PAIR B
ACTIVE PAIR C
A1
A2
B1
B2
C1
C2
#N+2
#N+1
#N
#N+2
#N+1
#N
#N+2
#N+1
#N

FIG. 19

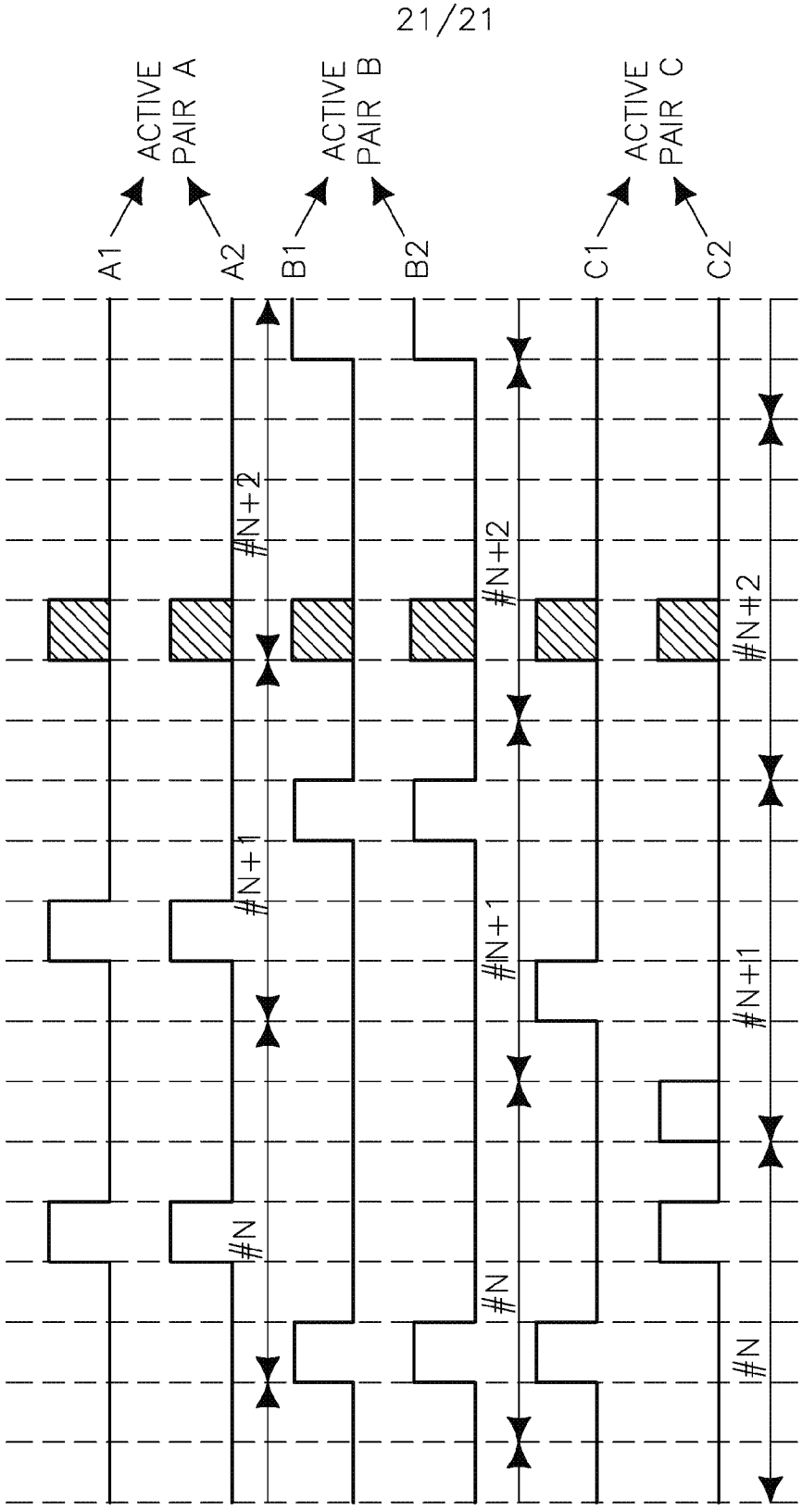

ACTIVE PAIR A
ACTIVE PAIR B
ACTIVE PAIR C
A1
A2
B1
B2
C1
C2
#N
#N+1
#N+2
#N
#N+1
#N+2
#N
#N+1
#N+2

FIG. 20