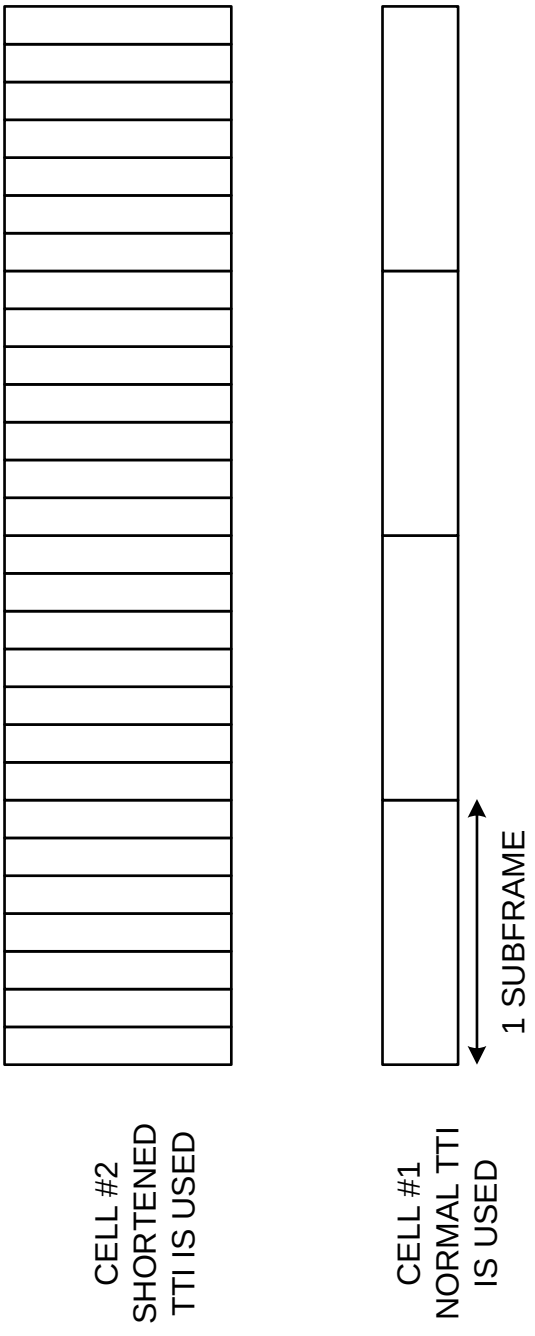

CELL #2
SHORTENED
TTI IS USED
CELL #1
NORMAL TTI
IS USED
1 SUBFRAME

FIG. 1

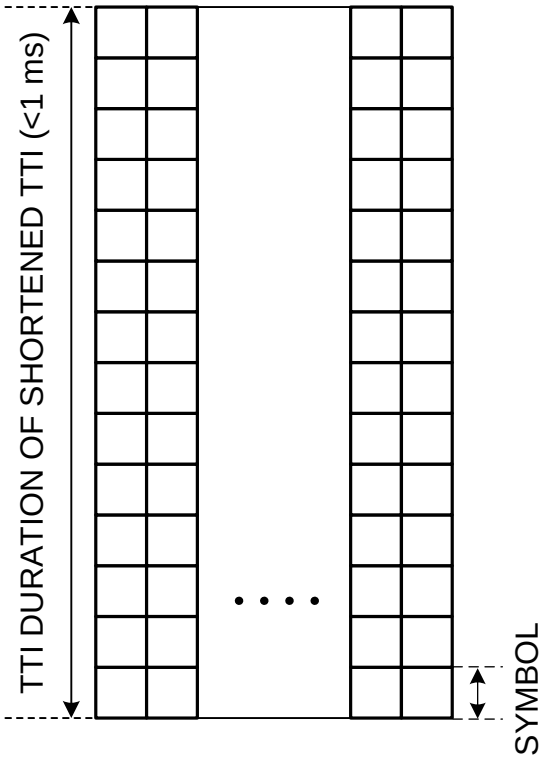

TTI DURATION OF SHORTENED TTI (<1 ms)
SYMBOL

FIG. 2A

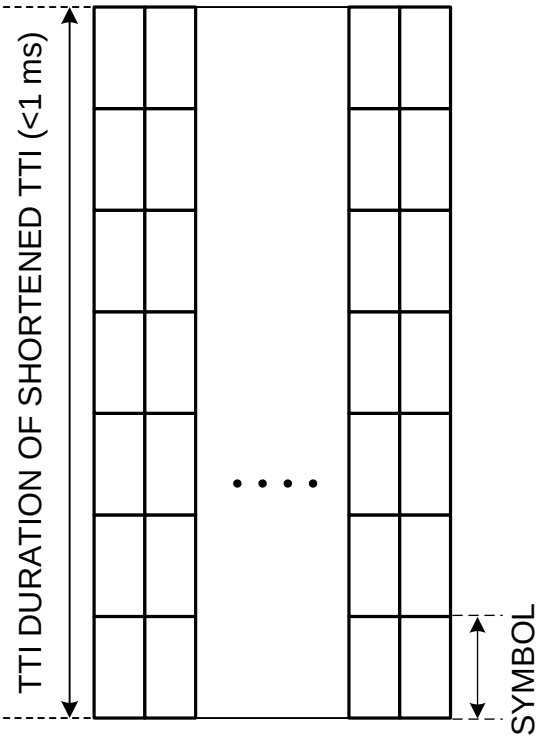

TTI DURATION OF SHORTENED TTI (<1 ms)
SYMBOL

FIG. 2B

FIG. 3A

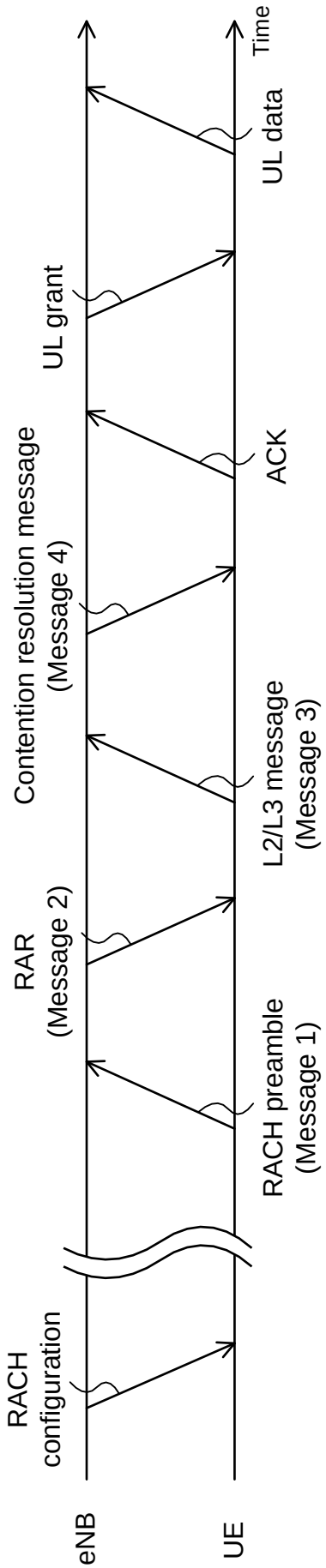
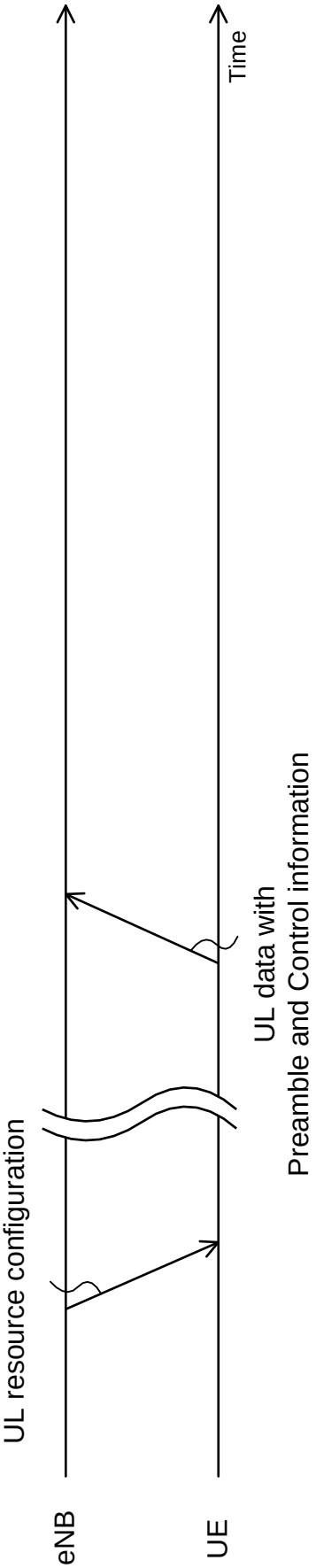

eNB
UE
Time
RACH configuration
RACH preamble (Message 1)
RAR (Message 2)
L2/L3 message (Message 3)
Contention resolution message (Message 4)
ACK
UL grant
UL data

FIG. 3B


eNB
UE
Time
UL resource configuration
UL data with Preamble and Control information

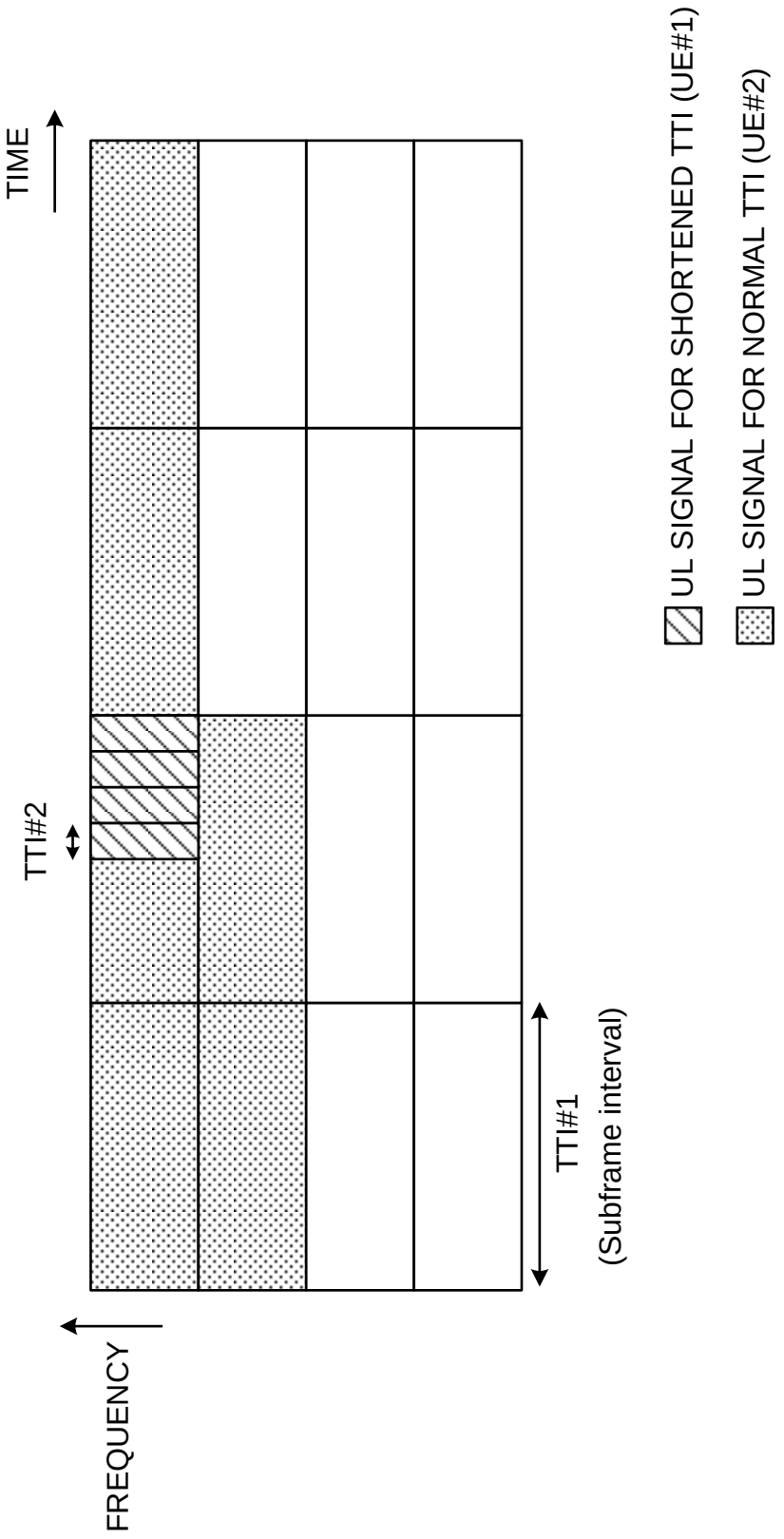

TIME
FREQUENCY
TTI#2
TTI#1
(Subframe interval)
UL SIGNAL FOR SHORTENED TTI (UE#1)
UL SIGNAL FOR NORMAL TTI (UE#2)

FIG. 4

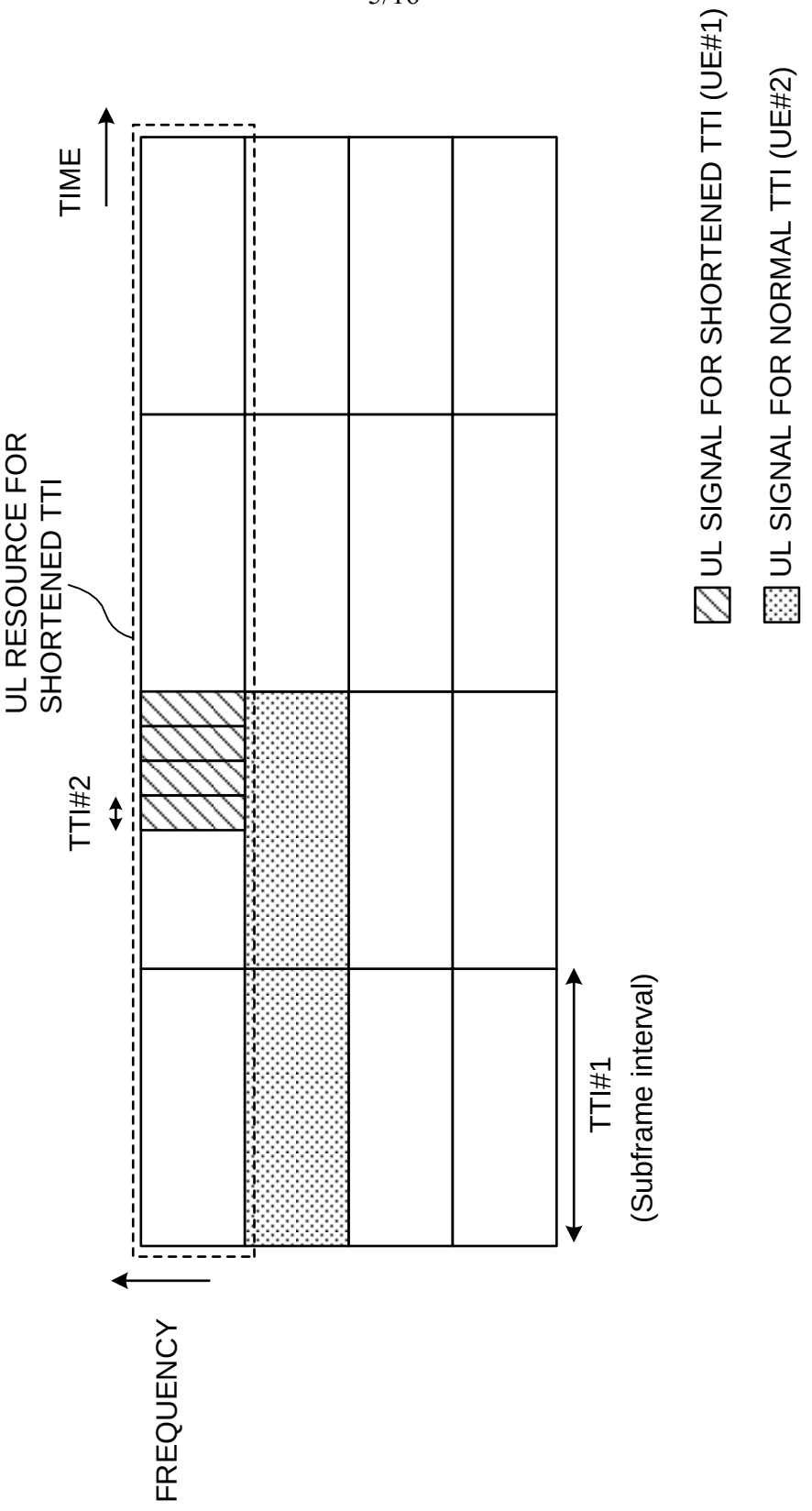

TIME
UL RESOURCE FOR SHORTENED TTI
TTI#2
FREQUENCY
TTI#1
(Subframe interval)
UL SIGNAL FOR SHORTENED TTI (UE#1)
UL SIGNAL FOR NORMAL TTI (UE#2)

FIG. 5

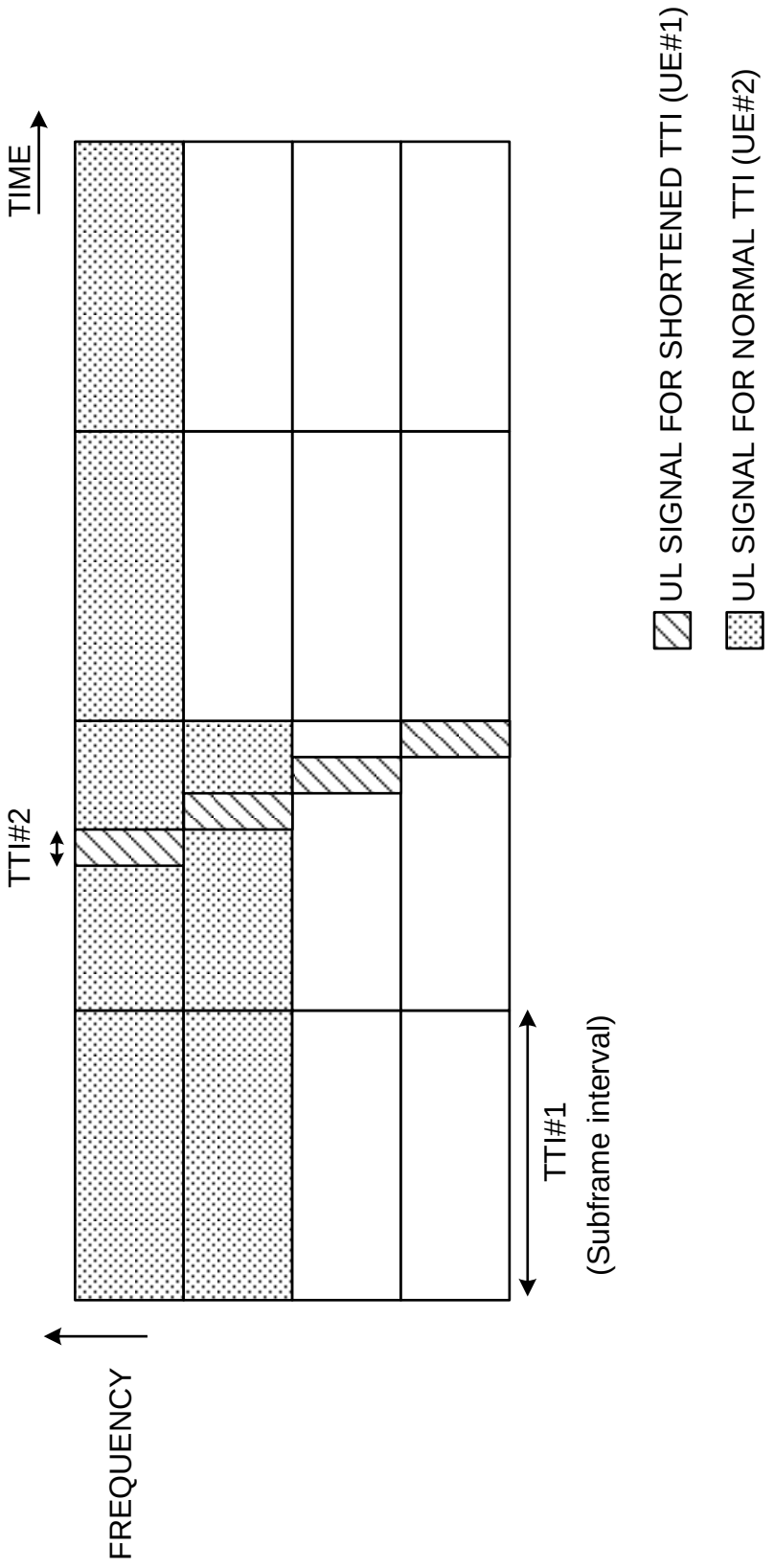

TIME
TTI#2
FREQUENCY
TTI#1
(Subframe interval)
UL SIGNAL FOR SHORTENED TTI (UE#1)
UL SIGNAL FOR NORMAL TTI (UE#2)

FIG. 6

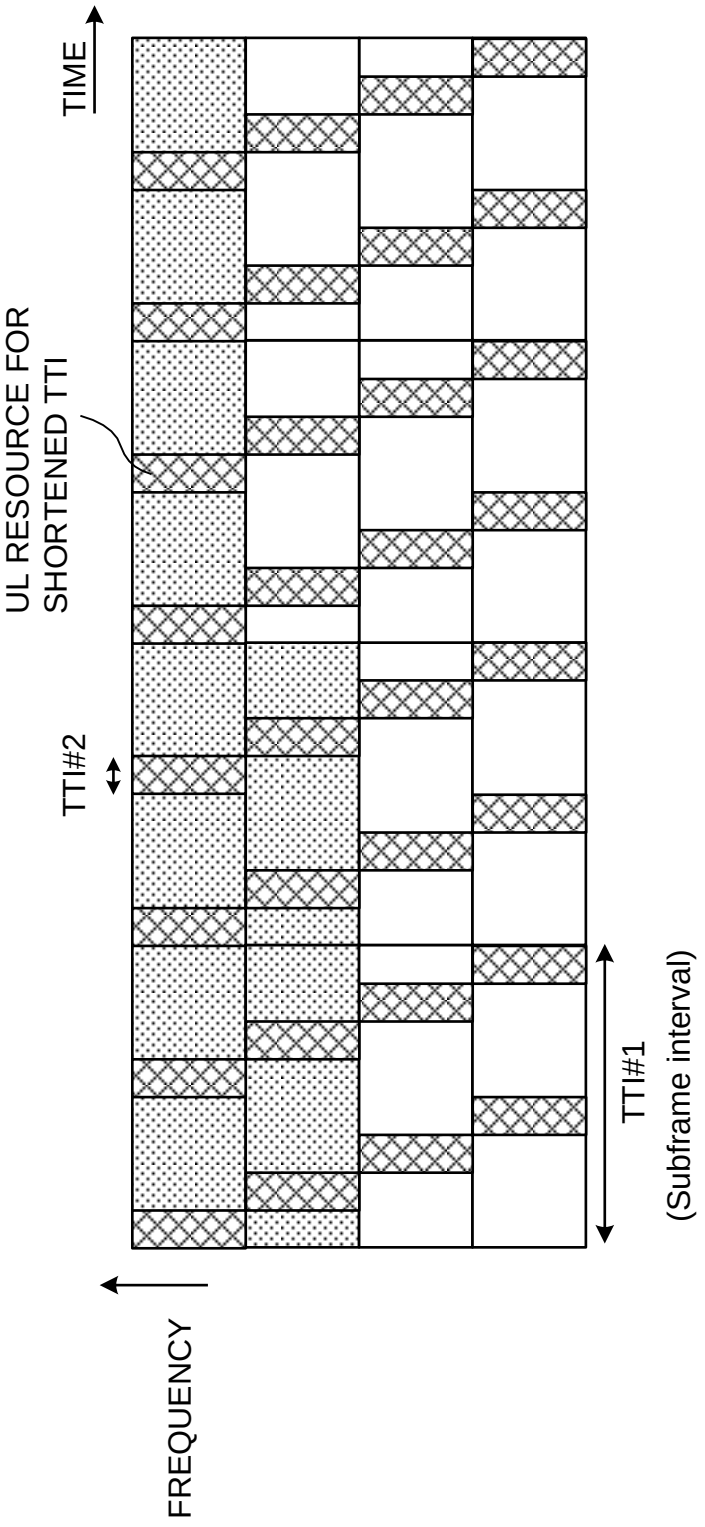

TIME
UL RESOURCE FOR
SHORTENED TTI
TTI#2
TTI#1
(Subframe interval)
FREQUENCY

FIG. 7

FIG. 8A

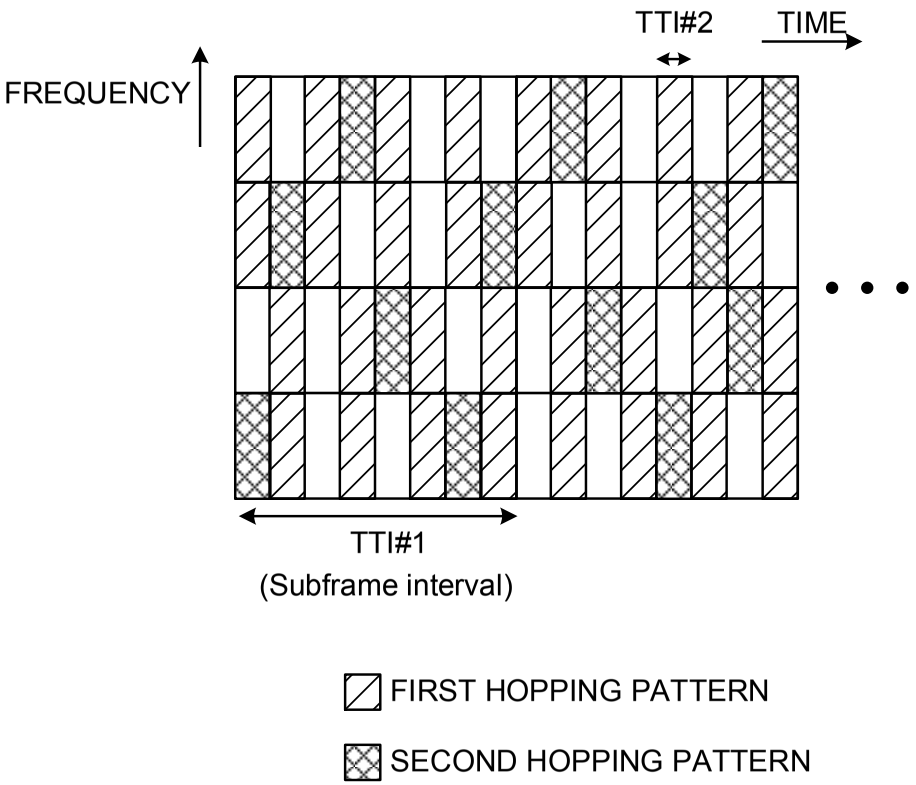
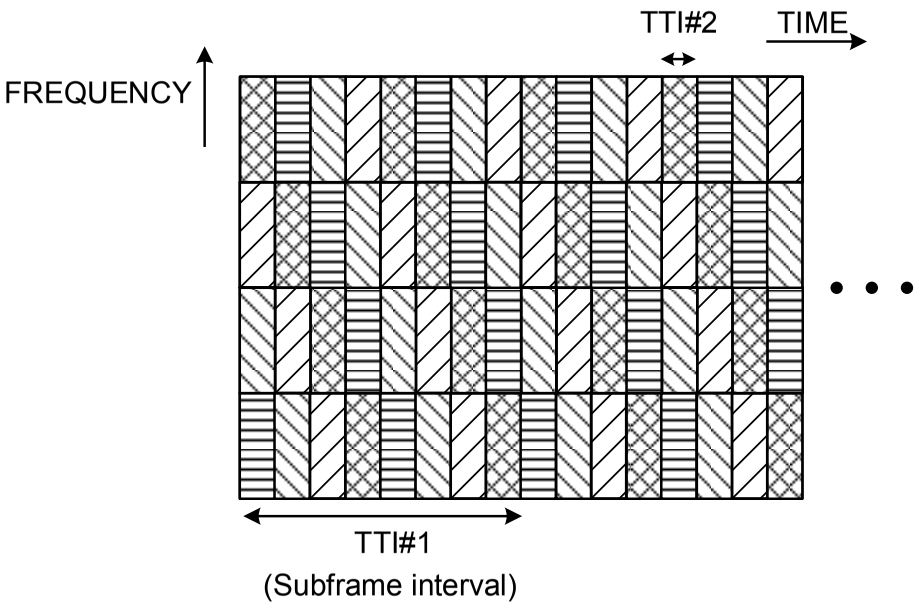

TTI#2
TIME
FREQUENCY
TTI#1
(Subframe interval)
FIRST HOPPING PATTERN
SECOND HOPPING PATTERN

FIG. 8B


TTI#2
TIME
FREQUENCY
TTI#1
(Subframe interval)

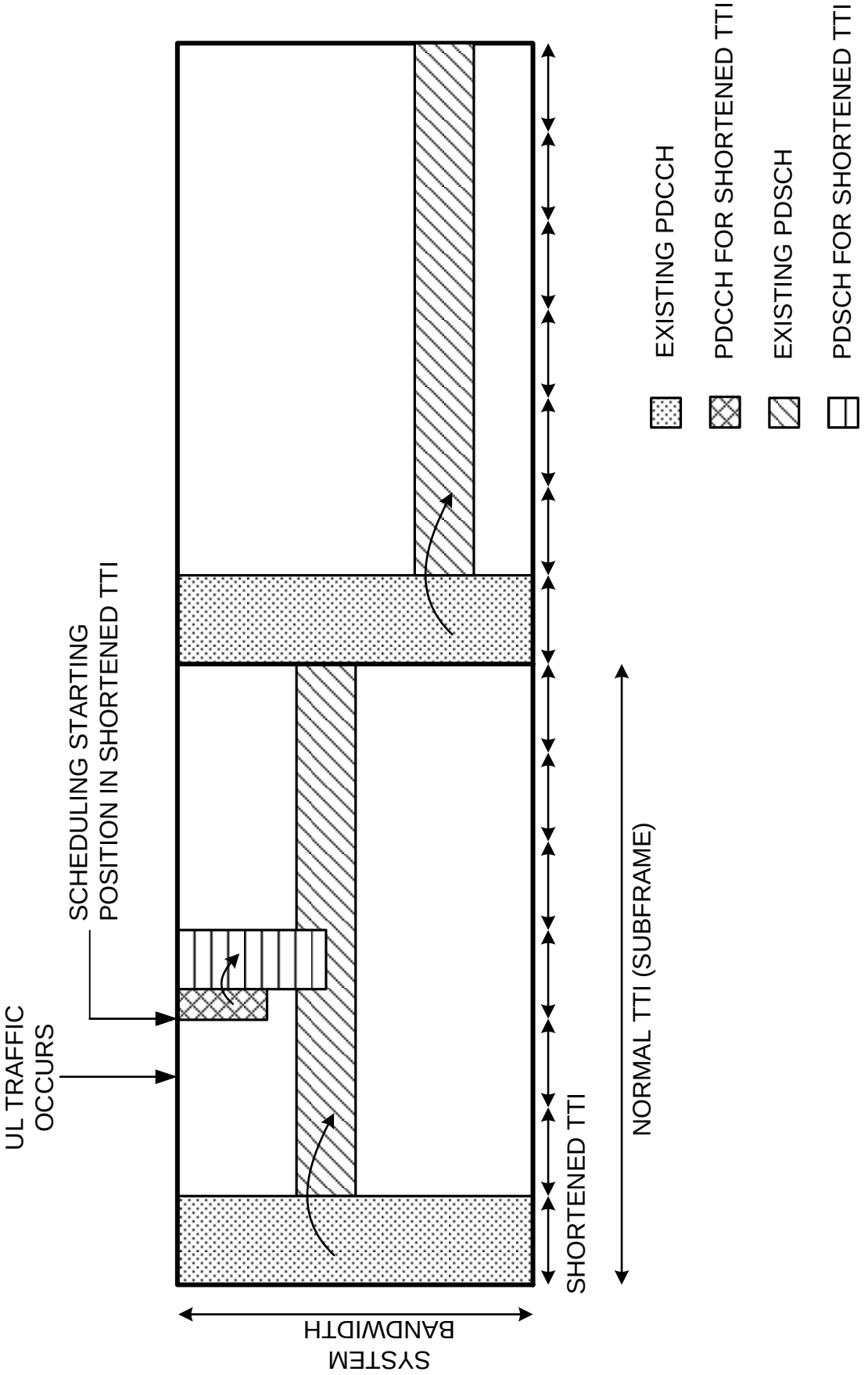

EXISTING PDCCH
PDCCH FOR SHORTENED TTI
EXISTING PDSCH
PDSCH FOR SHORTENED TTI
UL TRAFFIC OCCURS
SCHEDULING STARTING POSITION IN SHORTENED TTI
SHORTENED TTI
NORMAL TTI (SUBFRAME)
SYSTEM BANDWIDTH

FIG. 9

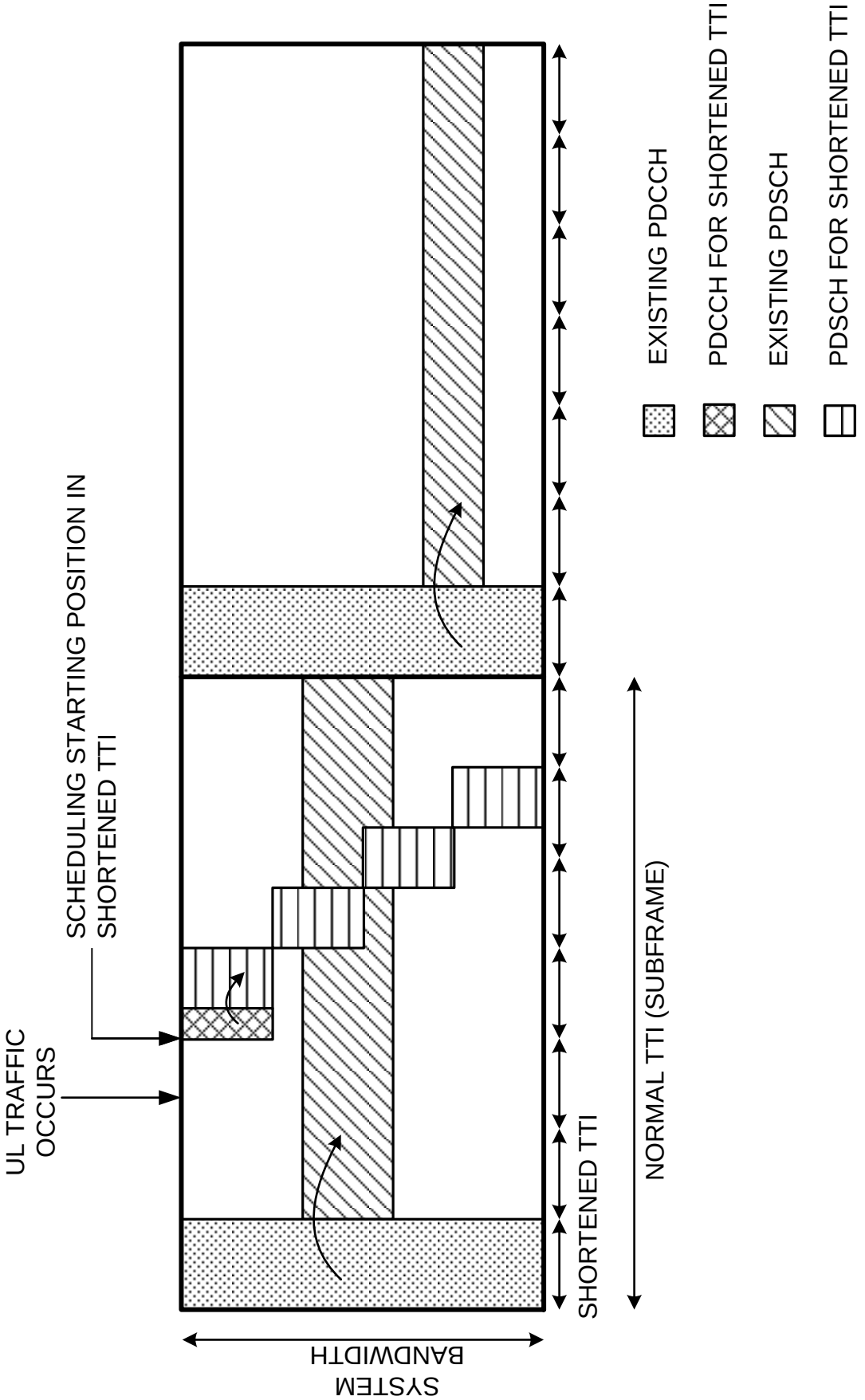

EXISTING PDCCH
PDCCH FOR SHORTENED TTI
EXISTING PDSCH
PDSCH FOR SHORTENED TTI
UL TRAFFIC OCCURS
SCHEDULING STARTING POSITION IN SHORTENED TTI
SHORTENED TTI
NORMAL TTI (SUBFRAME)
SYSTEM BANDWIDTH

FIG. 10

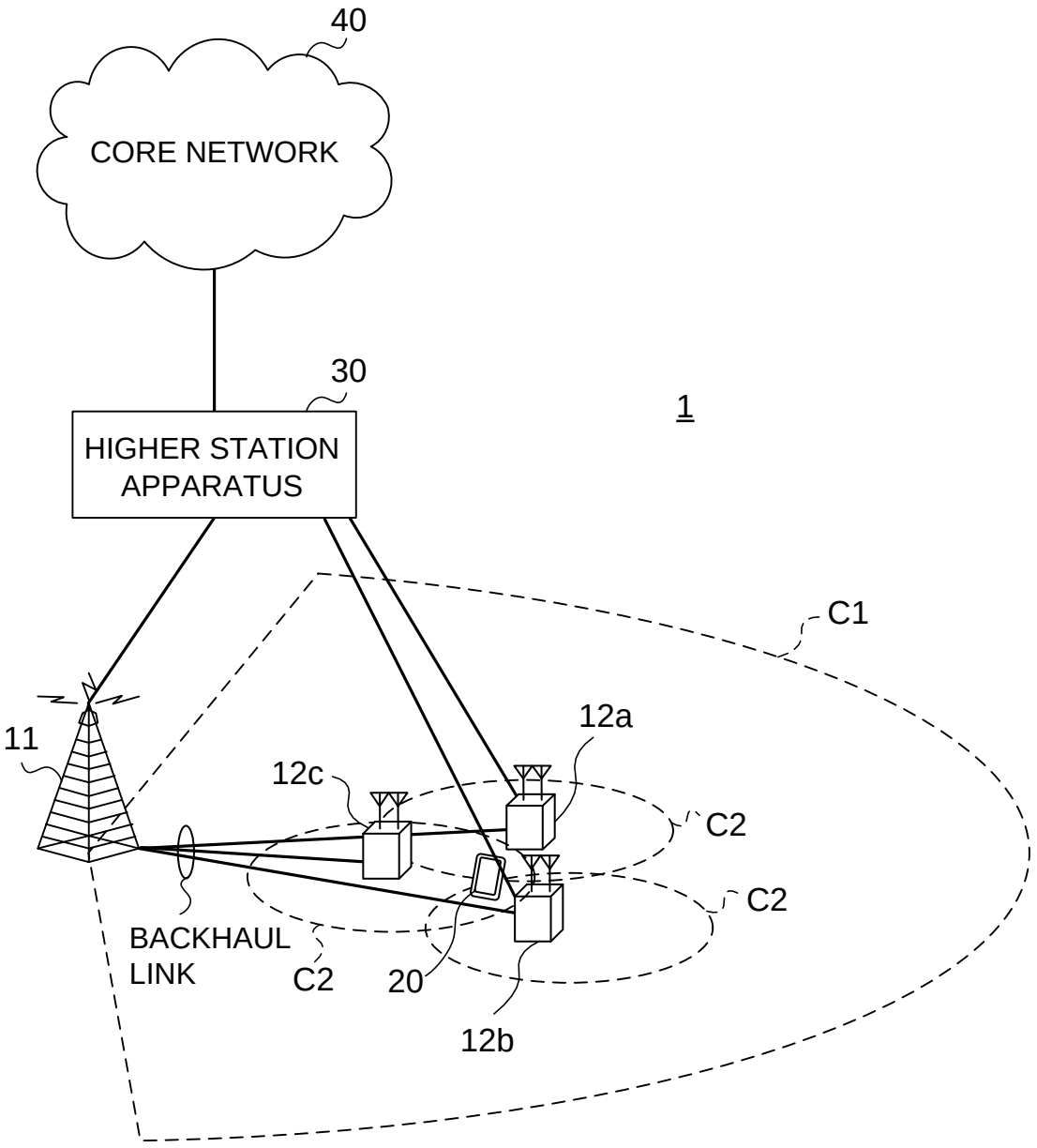

40
CORE NETWORK
30
HIGHER STATION APPARATUS
1
C1
11
12a
12c
C2
C2
BACKHAUL LINK
C2
20
12b

FIG. 11

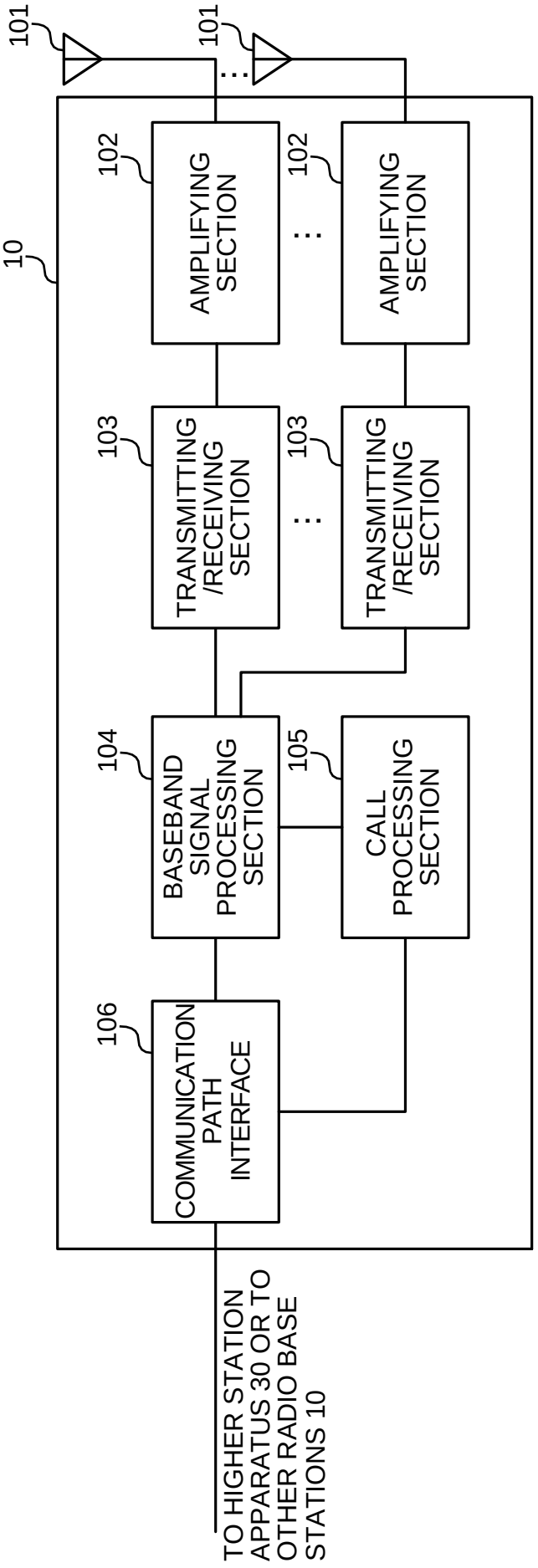

101
101
10
102
AMPLIFYING SECTION
102
AMPLIFYING SECTION
103
TRANSMITTING /RECEIVING SECTION
103
TRANSMITTING /RECEIVING SECTION
104
BASEBAND SIGNAL PROCESSING SECTION
105
CALL PROCESSING SECTION
106
COMMUNICATION PATH INTERFACE
TO HIGHER STATION APPARATUS 30 OR TO OTHER RADIO BASE STATIONS 10

FIG. 12

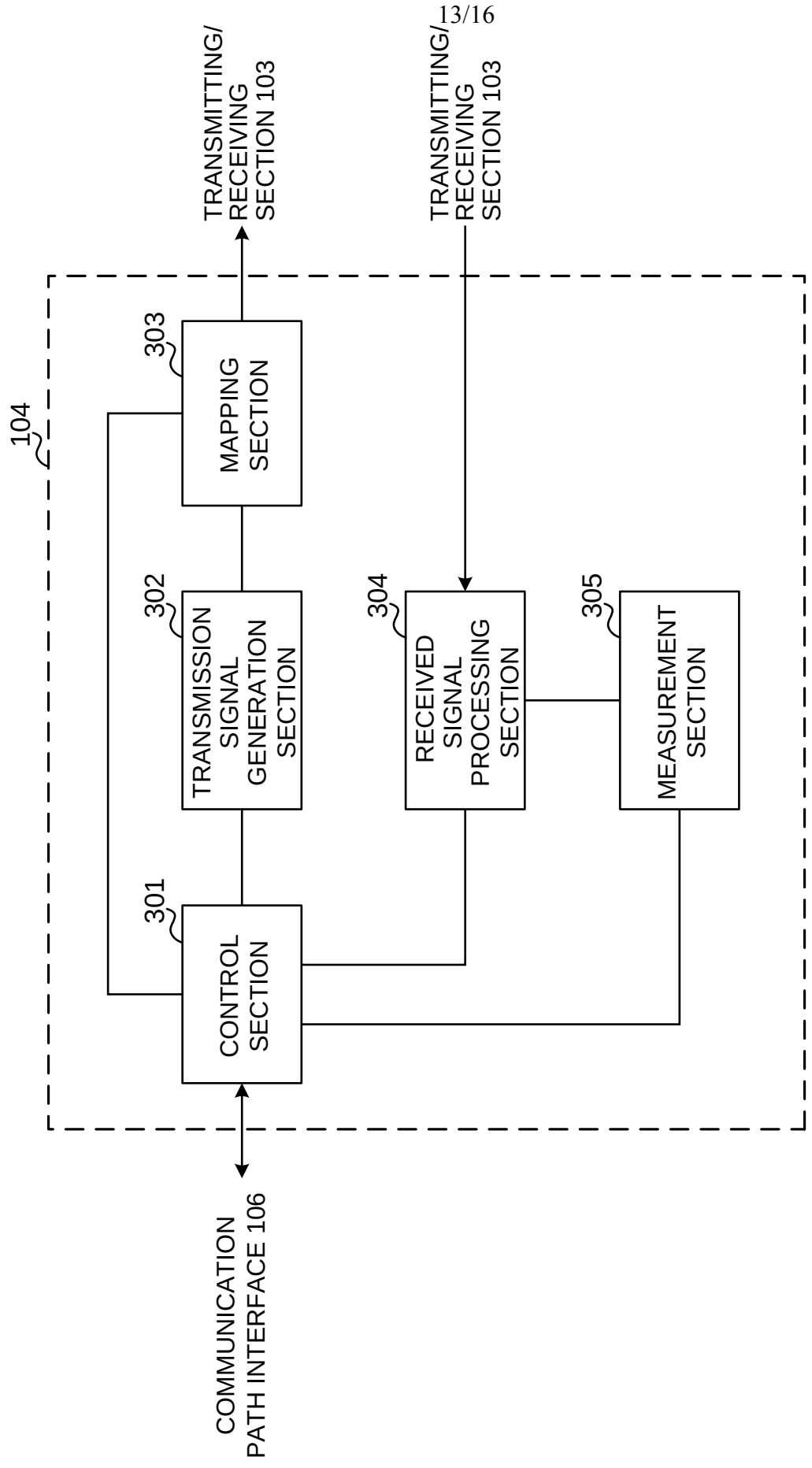

TRANSMITTING/
RECEIVING
SECTION 103
TRANSMITTING/
RECEIVING
SECTION 103
104
303
MAPPING
SECTION
302
TRANSMISSION
SIGNAL
GENERATION
SECTION
304
RECEIVED
SIGNAL
PROCESSING
SECTION
305
MEASUREMENT
SECTION
301
CONTROL
SECTION
COMMUNICATION
PATH INTERFACE 106

FIG. 13

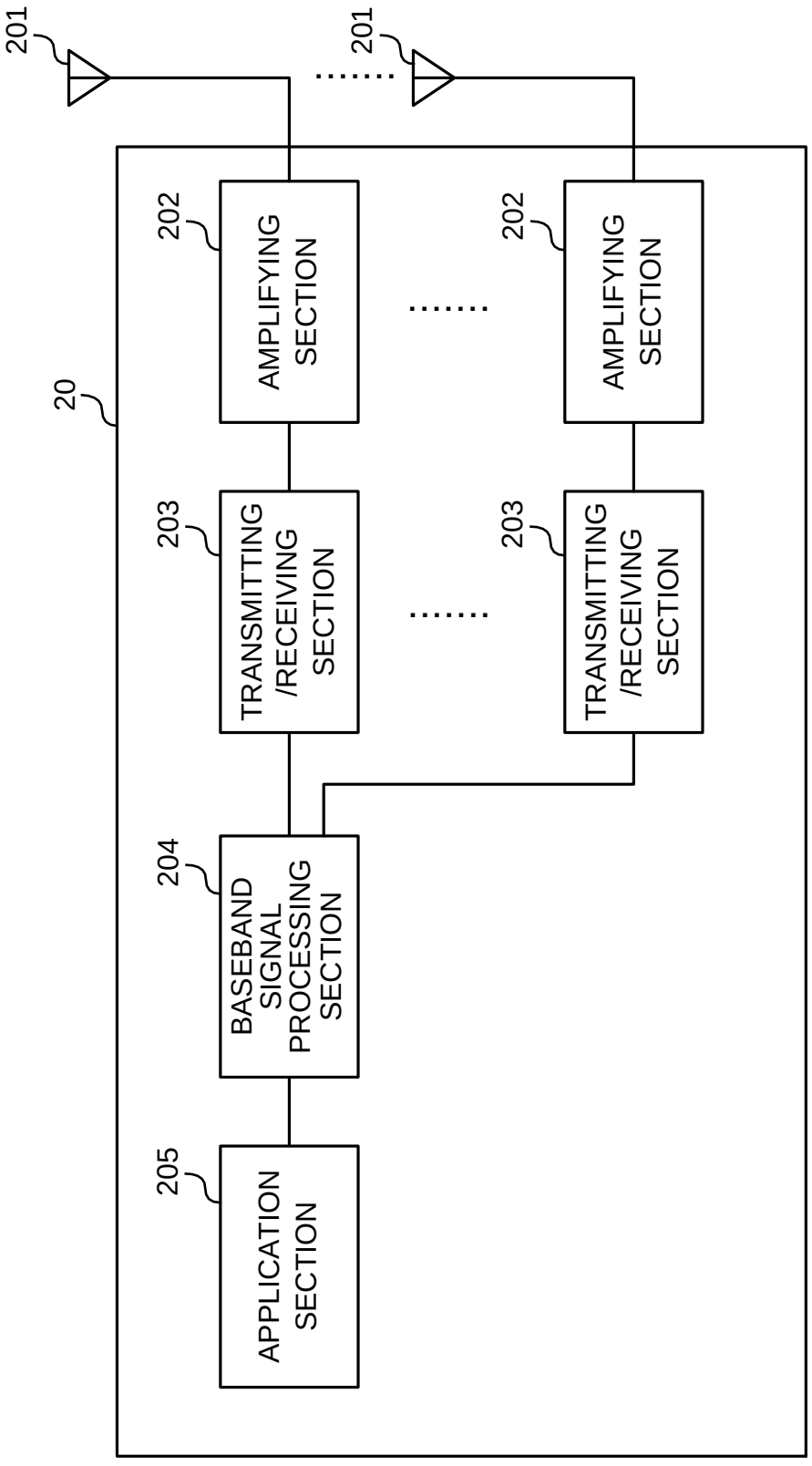

201
201
20
202
AMPLIFYING SECTION
202
AMPLIFYING SECTION
203
TRANSMITTING /RECEIVING SECTION
203
TRANSMITTING /RECEIVING SECTION
204
BASEBAND SIGNAL PROCESSING SECTION
205
APPLICATION SECTION

FIG. 14

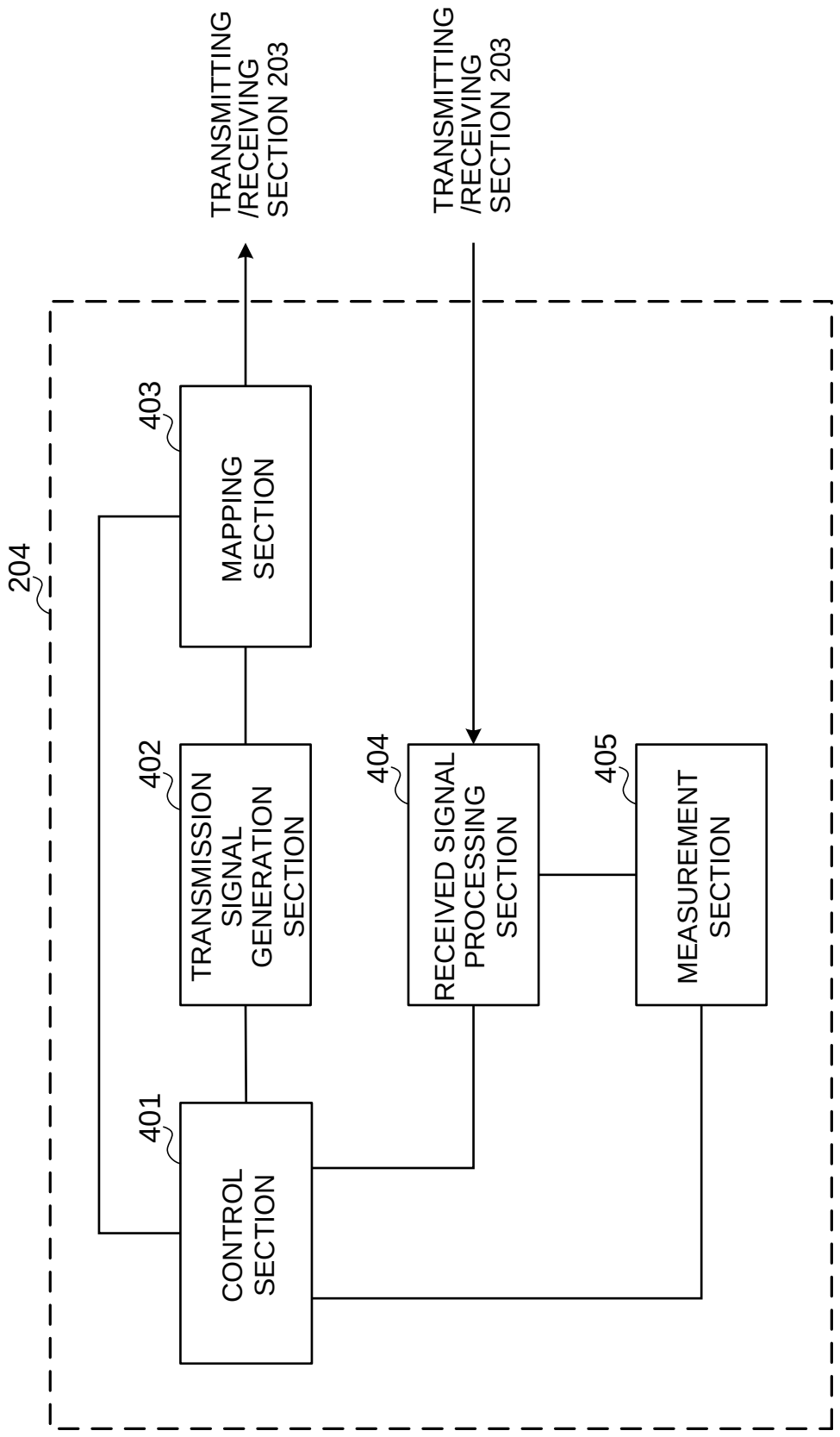

TRANSMITTING /RECEIVING SECTION 203
TRANSMITTING /RECEIVING SECTION 203
204
403
MAPPING SECTION
402
TRANSMISSION SIGNAL GENERATION SECTION
404
RECEIVED SIGNAL PROCESSING SECTION
405
MEASUREMENT SECTION
401
CONTROL SECTION

FIG. 15

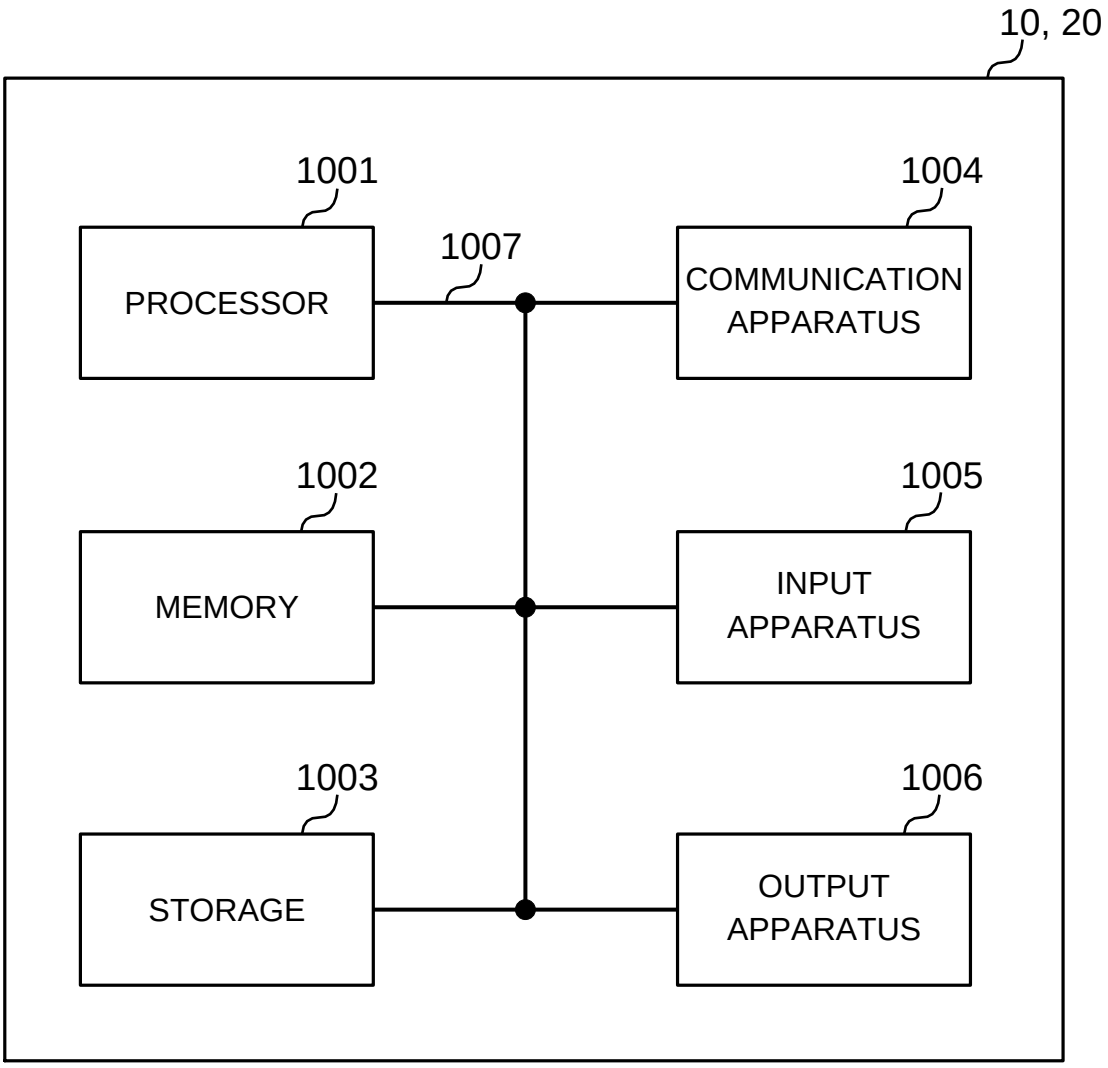

10, 20
1001
PROCESSOR
1007
1004
COMMUNICATION APPARATUS
1002
MEMORY
1005
INPUT APPARATUS
1003
STORAGE
1006
OUTPUT APPARATUS

FIG. 16