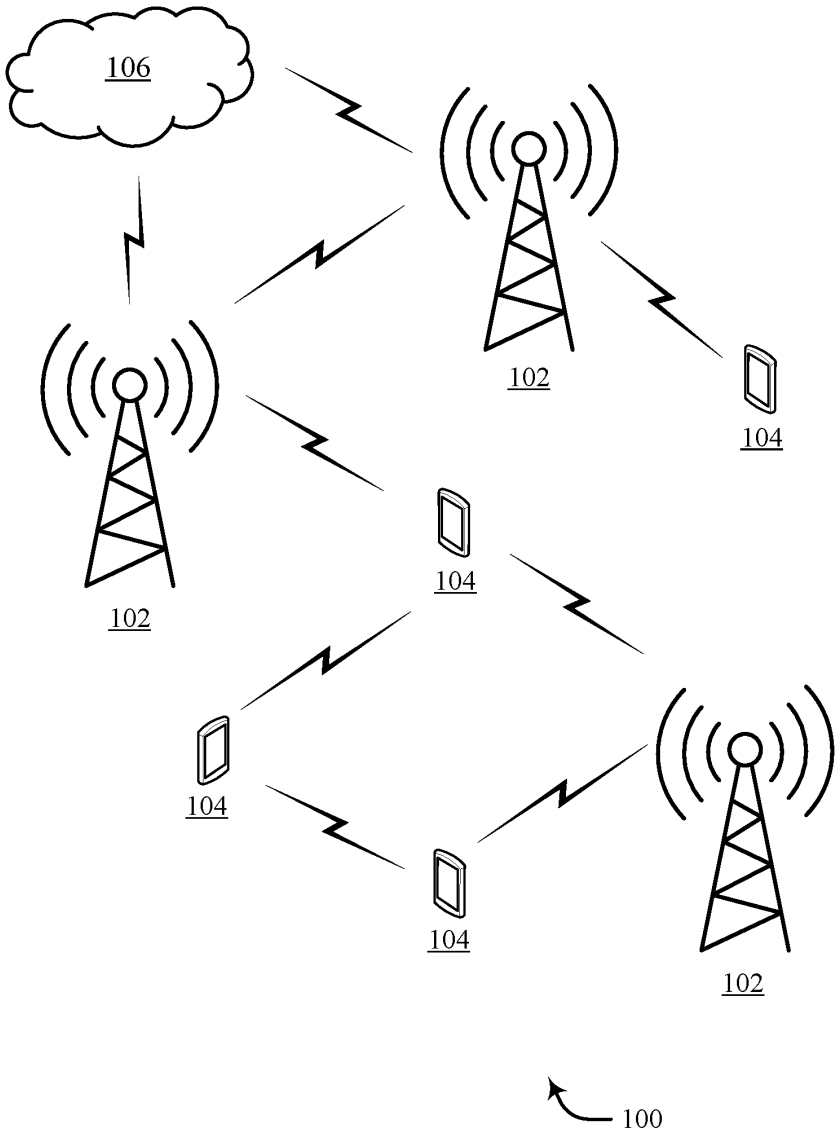



Figure 1

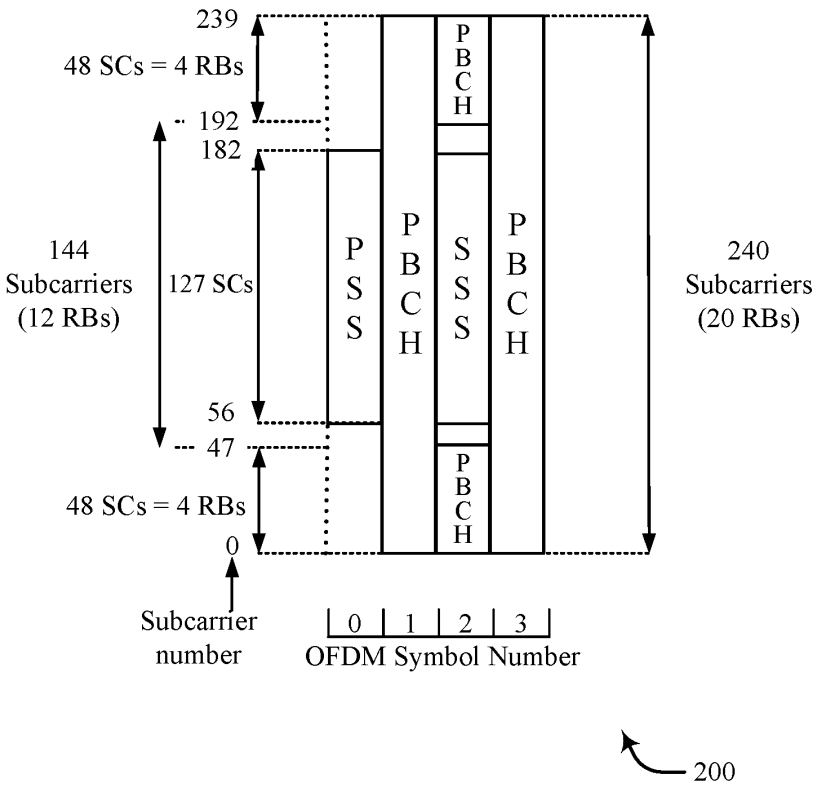

239
48 SCs = 4 RBs
192
182
144
Subcarriers
(12 RBs)
127 SCs
56
47
48 SCs = 4 RBs
0
Subcarrier
number
PSS
PBCH
PBCH
SSS
PBCH
PBCH
240
Subcarriers
(20 RBs)
0
1
2
3
OFDM Symbol Number
200

Figure 2

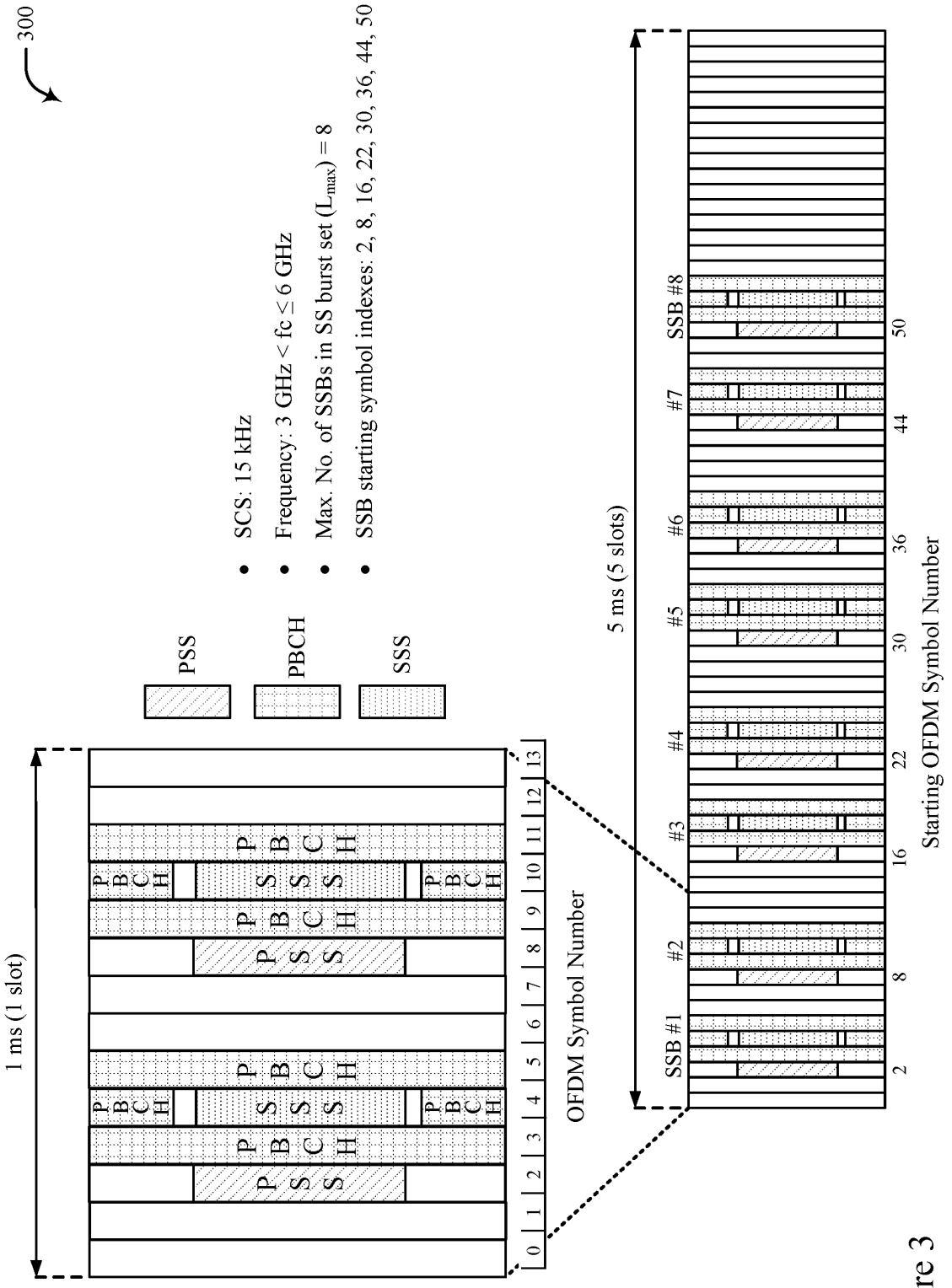

300
PSS
PBCH
SSS
SCS: 15 kHz
Frequency: 3 GHz < fc ≤ 6 GHz
Max. No. of SSBs in SS burst set ($L_{max}$) = 8
SSB starting symbol indexes: 2, 8, 16, 22, 30, 36, 44, 50
1 ms (1 slot)
0 1 2 3 4 5 6 7 8 9 10 11 12 13
OFDM Symbol Number
5 ms (5 slots)
SSB #1 #2 #3 #4 #5 #6 #7 SSB #8
2 8 16 22 30 36 44 50
Starting OFDM Symbol Number

Figure 3

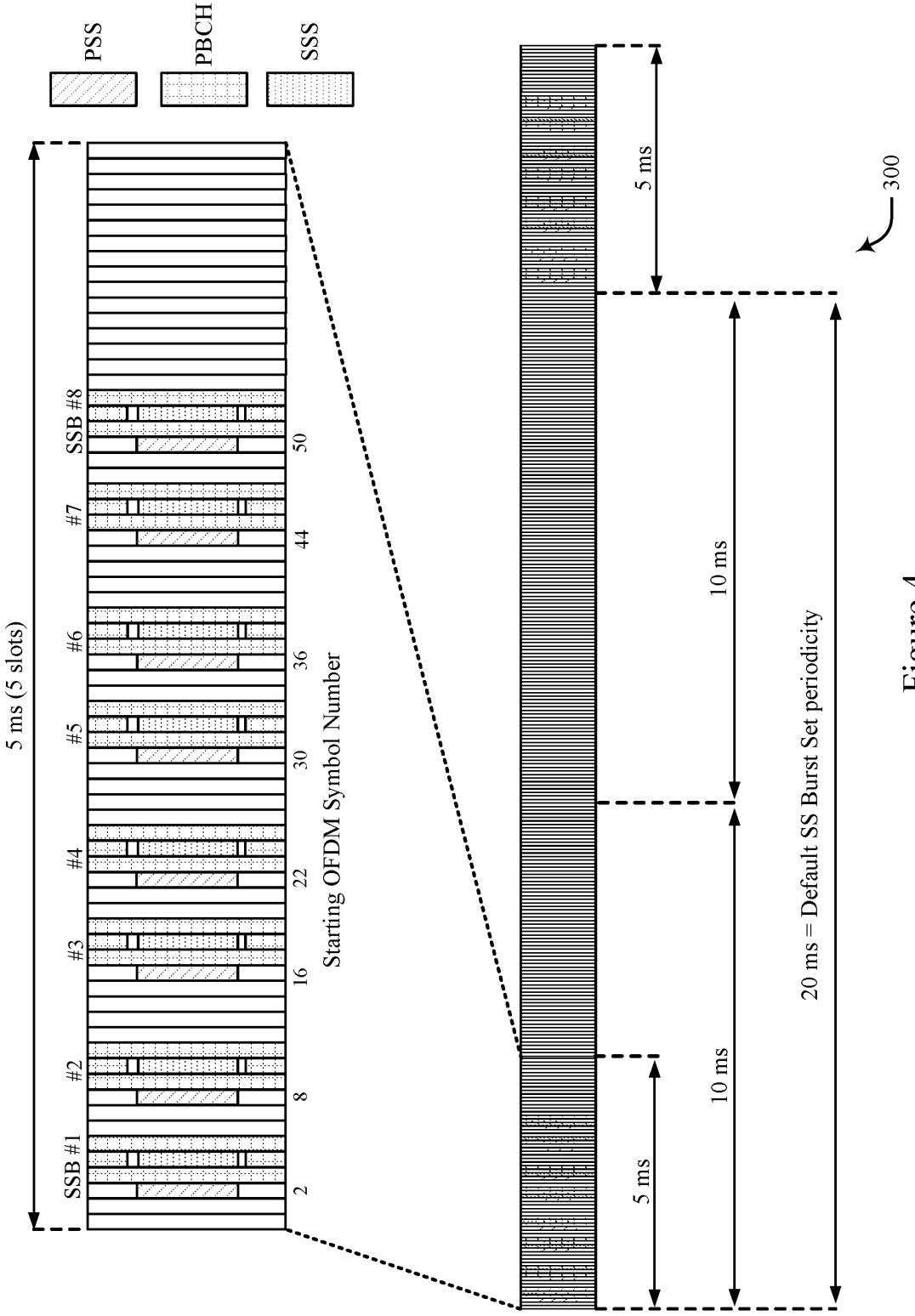

PSS
PBCH
SSS
5 ms (5 slots)
SSB #1
#2
#3
#4
#5
#6
#7
SSB #8
2
8
16
22
30
36
44
50
Starting OFDM Symbol Number
5 ms
10 ms
10 ms
20 ms = Default SS Burst Set periodicity
300

Figure 4

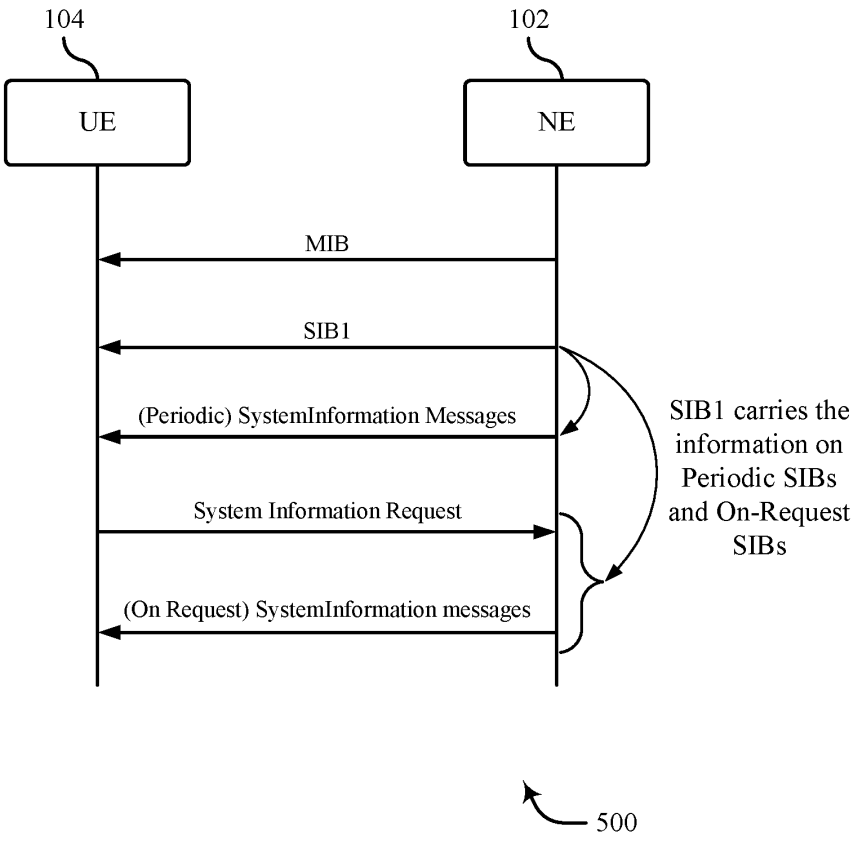

104
102
UE
NE
MIB
SIB1
(Periodic) SystemInformation Messages
System Information Request
(On Request) SystemInformation messages
SIB1 carries the information on Periodic SIBs and On-Request SIBs
500

Figure 5

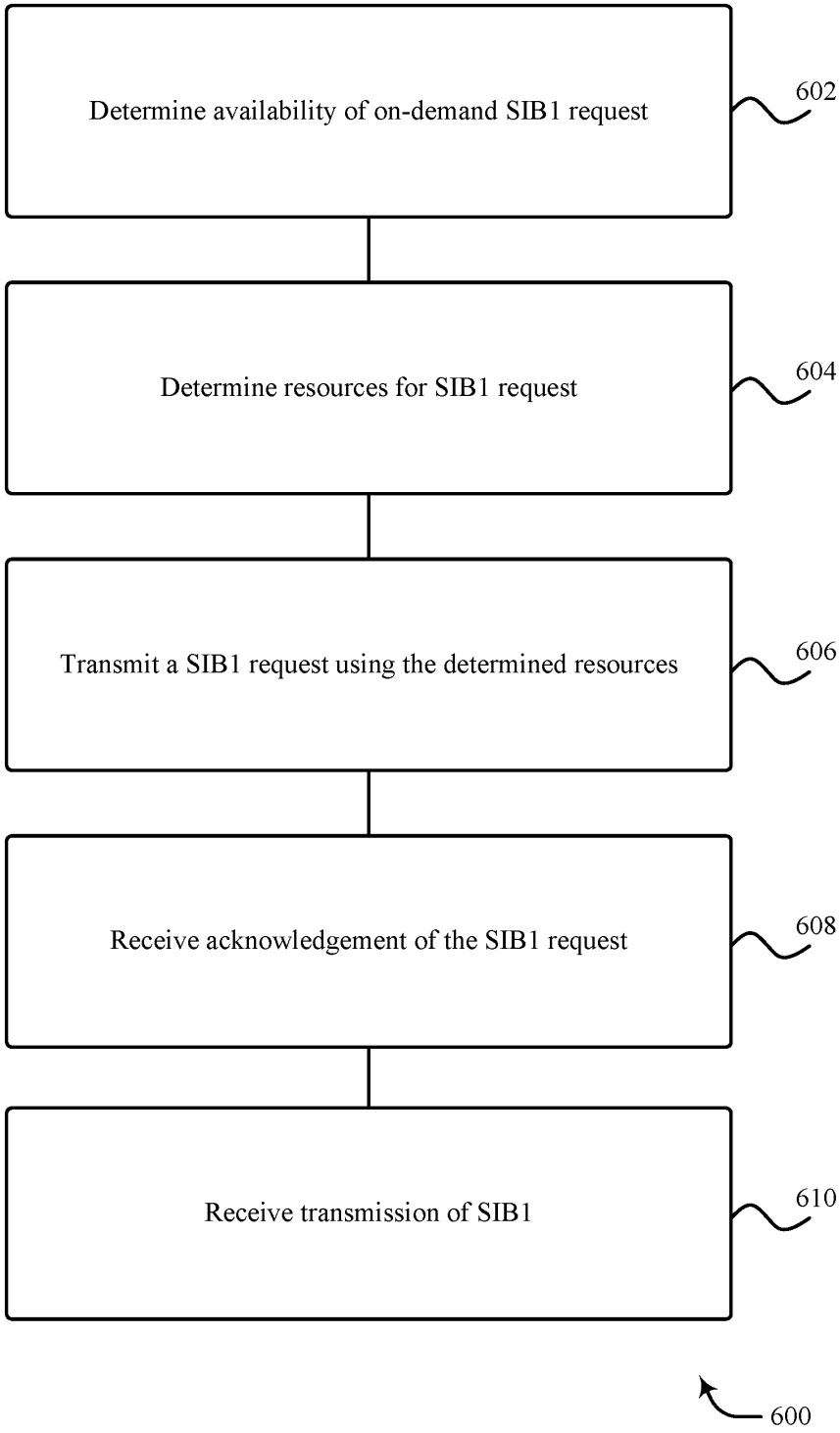

Determine availability of on-demand SIB1 request
602
Determine resources for SIB1 request
604
Transmit a SIB1 request using the determined resources
606
Receive acknowledgement of the SIB1 request
608
Receive transmission of SIB1
610
600

Figure 6

```
SI-RequestConfig ::=            SEQUENCE {
    rach-OccasionsSI                SEQUENCE {
        rach-ConfigSI                   RACH-ConfigGeneric,
            ssb-perRACH-Occasion            ENUMERATED {oneEighth, oneFourth, oneHalf, one, two, four, eight, sixteen}
        }                               OPTIONAL,  -- Need R
        si-RequestPeriod                ENUMERATED {one, two, four, six, eight, ten, twelve, sixteen}
                                    OPTIONAL,  -- Need R
        si-RequestResources             SEQUENCE (SIZE (1..maxSI-Message)) OF SI-RequestResources
    }

SI-RequestResources ::=         SEQUENCE {
    ra-PreambleStartIndex           INTEGER (0..63),
    ra-AssociationPeriodIndex       INTEGER (0..15)     OPTIONAL,   -- Need R
    ra-ssb-OccasionMaskIndex        INTEGER (0..15)     OPTIONAL    -- Need R
}
```

700

Figure 7

```
RACH-ConfigGeneric ::=              SEQUENCE {
   prach-ConfigurationIndex                 INTEGER (0..255),
   msg1-FDM                                 ENUMERATED {one, two, four, eight},
   msg1-FrequencyStart                      INTEGER (0..maxNrofPhysicalResourceBlocks-1),
   zeroCorrelationZoneConfig                INTEGER(0..15),
   preambleReceivedTargetPower              INTEGER (-202..-60),
   preambleTransMax                             ENUMERATED {n3, n4, n5, n6, n7, n8, n10, n20, n50, n100, n200},
   powerRampingStep                         ENUMERATED {dB0, dB2, dB4, dB6},
   ra-ResponseWindow                        ENUMERATED {sl1, sl2, sl4, sl8, sl10, sl20, sl40, sl80},
   ...,
   [[
   prach-ConfigurationPeriodScaling-IAB-r16   ENUMERATED {scf1,scf2,scf4,scf8,scf16,scf32,scf64}
OPTIONAL,   -- Need R
   prach-ConfigurationFrameOffset-IAB-r16                                   INTEGER (0..63)
OPTIONAL,   -- Need R
   prach-ConfigurationSOffset-IAB-r16                                       INTEGER (0..39)
OPTIONAL,   -- Need R
   ra-ResponseWindow-v1610                                              ENUMERATED { sl60, sl160}
OPTIONAL,   -- Need R
   prach-ConfigurationIndex-v1610                                           INTEGER (256..262)
OPTIONAL    -- Need R
   ]],
   [[
   ra-ResponseWindow-v1700              ENUMERATED {sl240, sl320, sl640, sl960, sl1280, sl1920, sl2560} OPTIONAL    -- Need R
   ]]
}
```

800

Figure 8

preambleTransMax = n8
powerRampingStep = dB2
ra-ResponseWindow = sl20 (or not used in some cases if Msg2 is not required to be used since UE shall monitor SIB1 broadcast transmission after transmitting the SIB1 request).
900

Figure 9

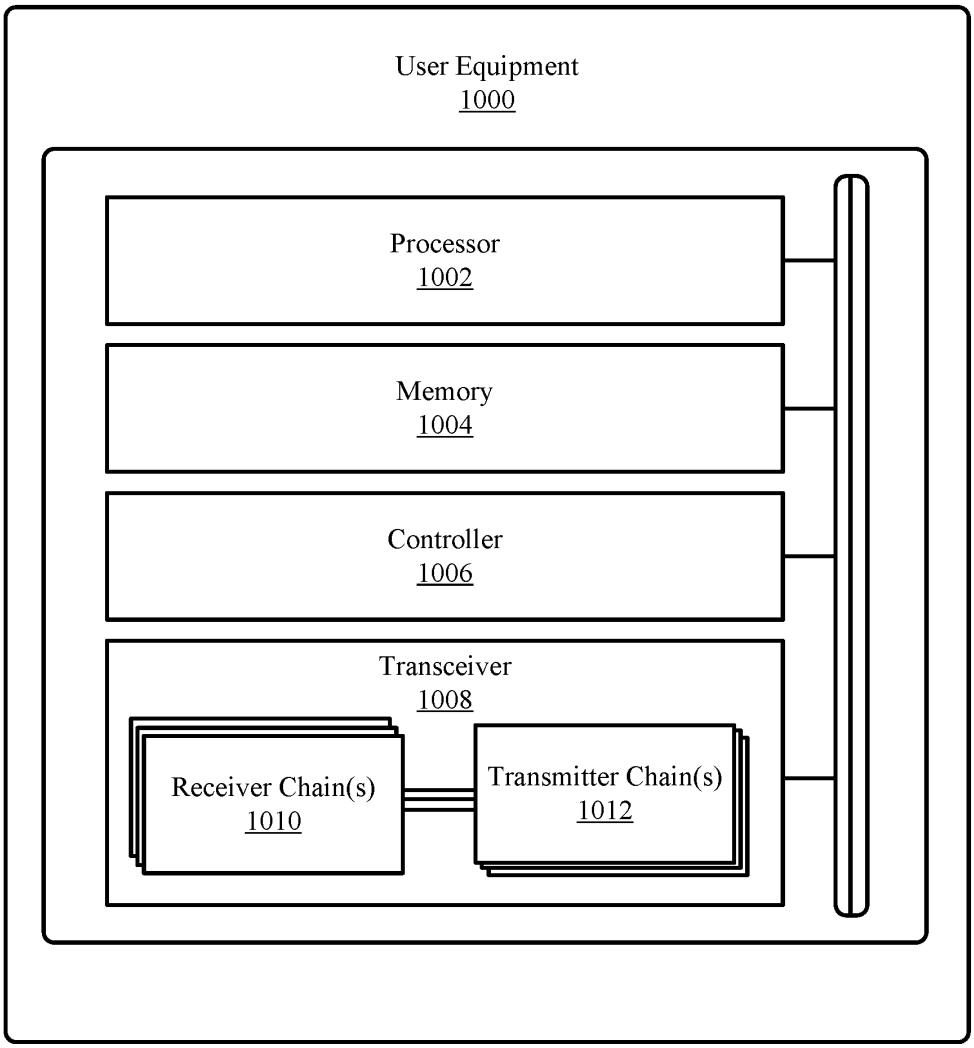

User Equipment
1000
Processor
1002
Memory
1004
Controller
1006
Transceiver
1008
Receiver Chain(s)
1010
Transmitter Chain(s)
1012

Figure 10

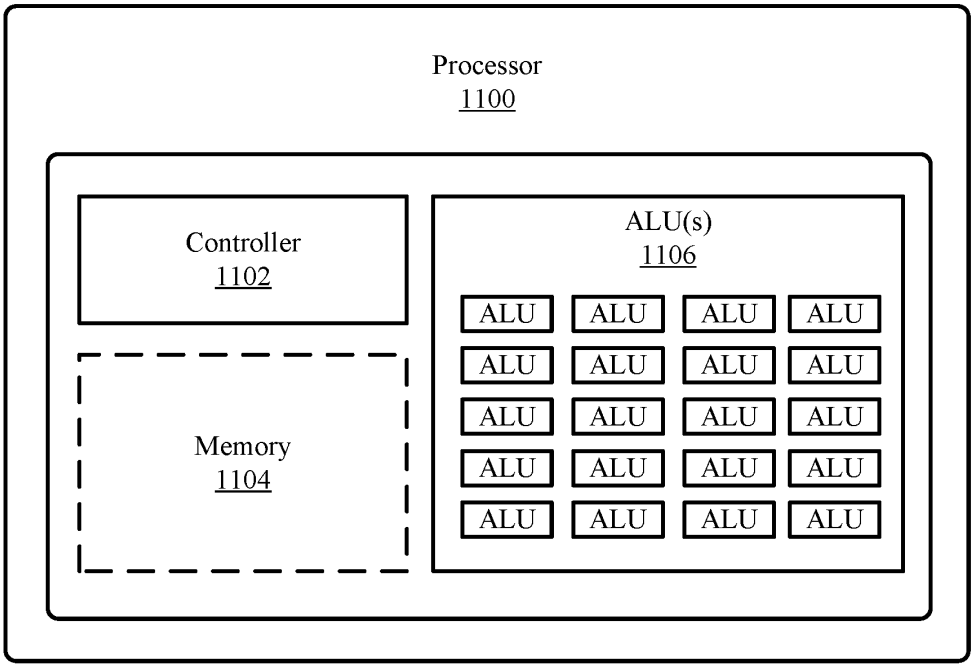

Processor
1100
Controller
1102
Memory
1104
ALU(s)
1106
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU
ALU

Figure 11

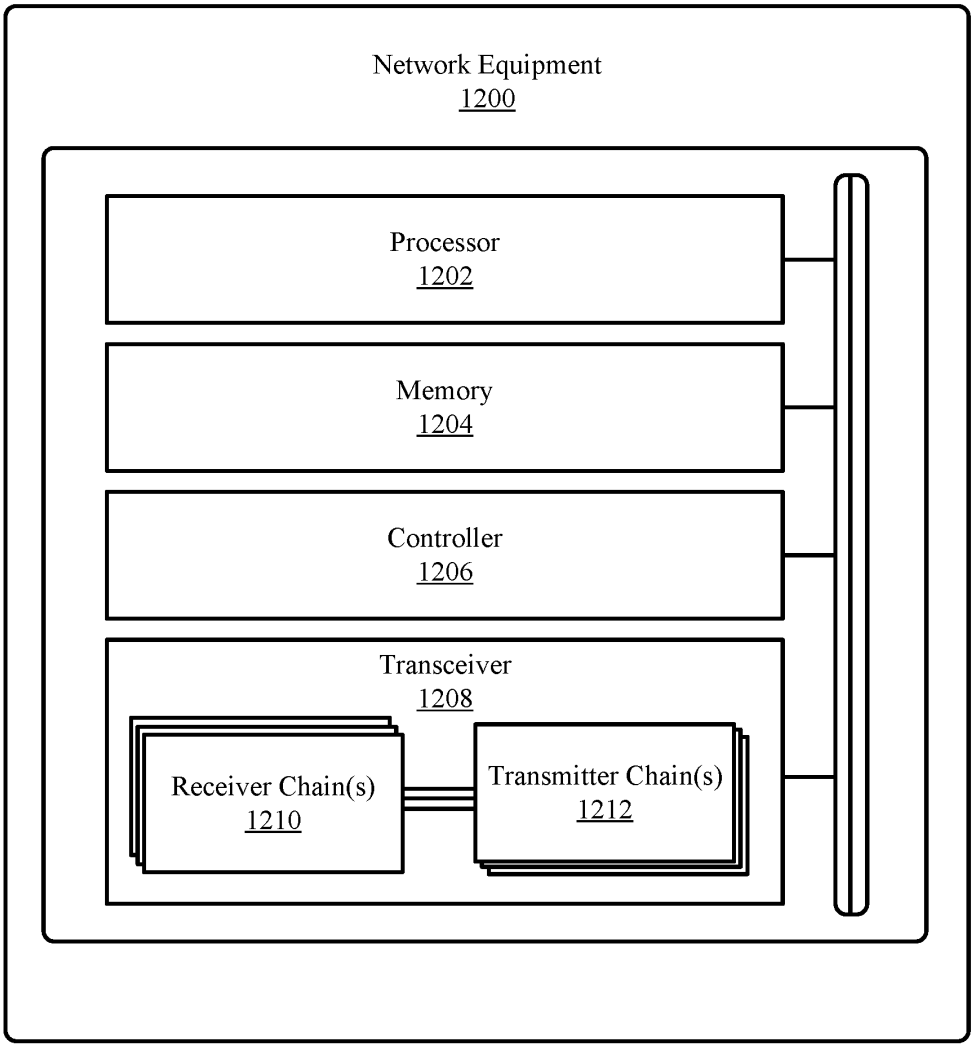

Network Equipment
1200
Processor
1202
Memory
1204
Controller
1206
Transceiver
1208
Receiver Chain(s)
1210
Transmitter Chain(s)
1212

Figure 12

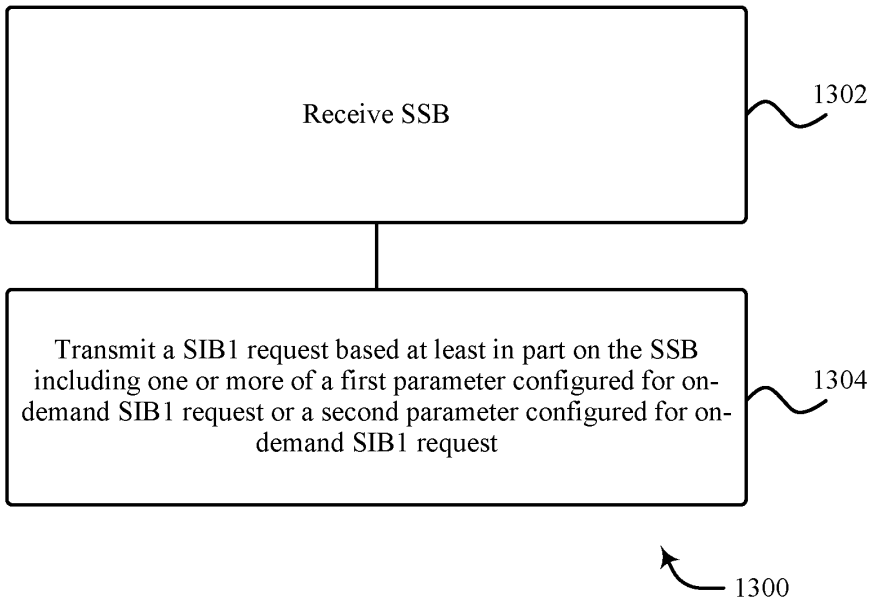



Figure 13

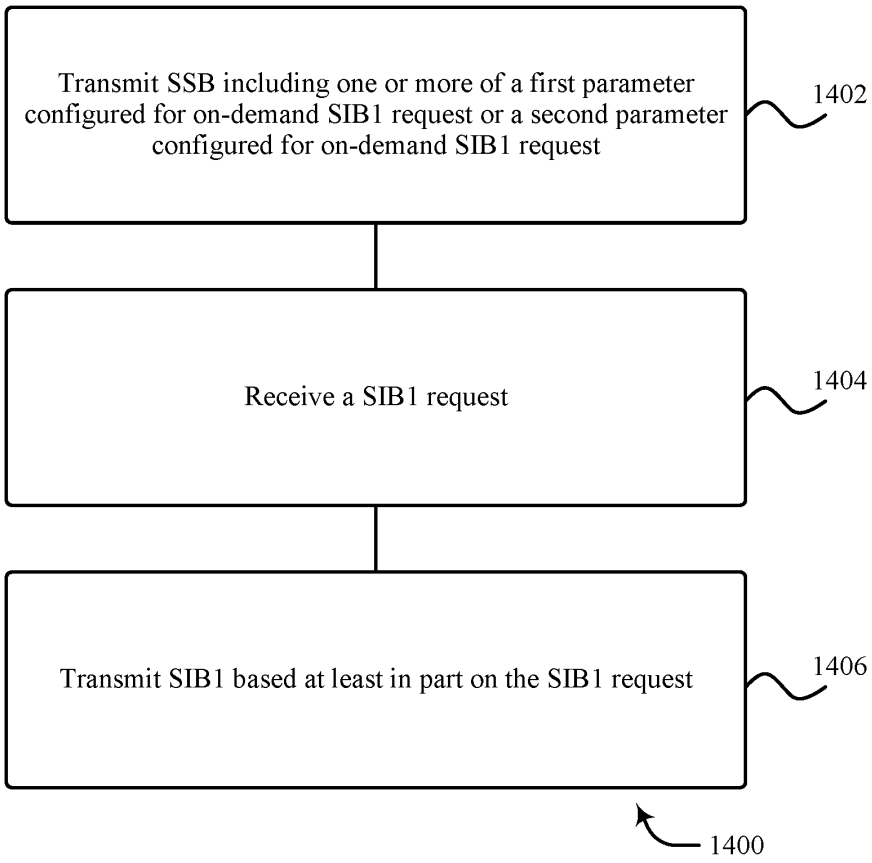



Figure 14