

CLAIMS

1. A random access method, comprising:

determining M random access channel, RACH, resource sets, wherein the M RACH resource sets correspond to N terminal types, the N terminal types are associated with bandwidth types and/or random access types of terminals, and M and N are positive integers; and

5 sending a system information block 1, SIB1, on a downlink, DL, initial bandwidth part, BWP, to at least one terminal, wherein the SIB1 comprises RACH configuration information, wherein the RACH configuration information indicates the M RACH resource sets, the M RACH resource sets are used by the at least one terminal to send a random access request to a network device, and
10 a bandwidth type of any one of the at least one terminal belongs to the bandwidth types associated with the N terminal types, wherein the SIB1 further configures at least one uplink, UL, initial BWP corresponding to the N terminal types.

2. The method according to claim 1, wherein

a bandwidth type of the at least one terminal is NR_legacy or NR_REDCAP type2, wherein
15 a bandwidth of NR_legacy is 100MHz, and a bandwidth of NR_REDCAP type2 is 20MHz;

each of the M RACH resource sets includes a combination of a time domain resource, a frequency domain resource, and an orthogonal code sequence resource of a RACH.

3. The method according to claim 1 or 2, wherein the RACH configuration information further indicates one of a first RACH configuration or a second RACH configuration, wherein the
20 first RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is less than N, and M is equal to 1;

the second RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is equal to N, and M is greater than 1.

25 4. The method according to any one of claims 1 to 3, wherein

a terminal of bandwidth type NR_REDCAP type2 and a terminal of bandwidth type NR_legacy correspond to a same UL initial BWP.

5. The method according to claim 4, wherein

the same UL initial BWP is for receiving random access requests on a first RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH and a
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terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the same UL initial BWP is for receiving random access requests on a fifth RACH resource set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH and on a ninth RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH.

6. The method according to any one of claims 1 to 3, wherein

a terminal of a bandwidth type NR_REDCAP type2 corresponds to a second UL initial BWP, a terminal of a bandwidth type NR_legacy corresponds to a third UL initial BWP, wherein

the second UL initial BWP is for receiving random access request on a first RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third UL initial BWP is for receiving random access request on the first RACH resource set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the second UL initial BWP is for receiving random access request on a fifth RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third UL initial BWP is for receiving random access request on the ninth RACH resource set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH.

7. A random access method, comprising:

receiving a system information block 1, SIB1, on a downlink, DL, initial bandwidth part, BWP, wherein the SIB1 comprises random access channel RACH configuration information, wherein the RACH configuration information indicates M RACH resource sets, the M RACH resource sets correspond to N terminal types, the N terminal types are associated with bandwidth types and/or random access types of terminals, and M and N are positive integers, wherein the SIB1 further configures at least one uplink, UL, initial BWP corresponding to the N terminal types; and

determining, based on the RACH configuration information, a target RACH resource set used by a terminal to send a random access request to a network device, wherein a bandwidth type of the terminal belongs to the bandwidth types associated with the N terminal types.

8. The method according to claim 7, wherein

a bandwidth type of the at least one terminal is NR_legacy or NR_REDCAP type2, wherein a bandwidth of NR_legacy is 100MHz, and a bandwidth of NR_REDCAP type2 is 20MHz;

each of the M RACH resource sets includes a combination of a time domain resource, a

frequency domain resource, and an orthogonal code sequence resource of a RACH.

9. The method according to claim 7 or 8, wherein the RACH configuration information further indicates one of a first RACH configuration or a second RACH configuration, wherein the first RACH configuration is that the M RACH resource sets correspond to the N terminal types,

5 M is less than N, and M is equal to 1;

the second RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is equal to N, and M is greater than 1.

10. The method according to any one of claims 7 to 9, wherein

a terminal of bandwidth type NR_REDCAP type2 and a terminal of bandwidth type
10 NR_legacy correspond to a same UL initial BWP.

11. The method according to claim 10, wherein

the same UL initial BWP is for receiving random access requests on a first RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH and a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

15 the same UL initial BWP is for receiving random access requests on a fifth RACH resource set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH and on a ninth RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH.

12. The method according to any one of claims 7 to 9, wherein

20 a terminal of a bandwidth type NR_REDCAP type2 corresponds to a second UL initial BWP, a terminal of a bandwidth type NR_legacy corresponds to a third UL initial BWP, wherein

the second UL initial BWP is for receiving random access request on a first RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third UL initial BWP is for receiving random access request on the first RACH resource set from a
25 terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the second UL initial BWP is for receiving random access request on a fifth RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third UL initial BWP is for receiving random access request on the ninth RACH resource set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH.

30 13. A communication apparatus, comprising:

a processing unit, configured to determine M random access channel RACH resource sets,

wherein the M RACH resource sets correspond to N terminal types, the N terminal types are associated with bandwidth types and/or random access types of terminals, and M and N are positive integers; and

5 a transceiver unit, configured to send a system information block 1, SIB1, on a downlink, DL, initial bandwidth part, BWP, to at least one terminal, wherein the SIB1 comprises RACH configuration information, wherein the RACH configuration information indicates the M RACH resource sets, the M RACH resource sets are used by the at least one terminal to send a random access request to a network device, and a bandwidth type of any one of the at least one terminal belongs to the bandwidth types associated with the N terminal types, wherein the SIB1 further
10 configures at least one uplink, UL, initial BWP corresponding to the N terminal types.

14. The communication apparatus according to claim 13, wherein

a bandwidth type of the at least one terminal is NR_legacy or NR_REDCAP type2, wherein a bandwidth of NR_legacy is 100MHz, and a bandwidth of NR_REDCAP type2 is 20MHz;

each of the M RACH resource sets includes a combination of a time domain resource, a
15 frequency domain resource, and an orthogonal code sequence resource of a RACH.

15. The communication apparatus according to claim 13 or 14, wherein the RACH configuration information further indicates one of a first RACH configuration or a second RACH configuration, wherein the first RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is less than N, and M is equal to 1;

20 the second RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is equal to N, and M is greater than 1.

16. The communication apparatus according to any one of claims 13 to 15, wherein

a terminal of bandwidth type NR_REDCAP type2 and a terminal of bandwidth type NR_legacy correspond to a same UL initial BWP.

25 17. The communication apparatus according to claim 16, wherein

the same UL initial BWP is for receiving random access requests on a first RACH resource set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH and a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the same UL initial BWP is for receiving random access requests on a fifth RACH resource
30 set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH and on a ninth RACH resource set from a terminal of a terminal type determined based on

NR_legacy and 4-step RACH.

18. The communication apparatus according to any one of claims 13 to 15, wherein
a terminal of a bandwidth type NR_REDCAP type2 corresponds to a second UL initial BWP,
a terminal of a bandwidth type NR_legacy corresponds to a third UL initial BWP, wherein

5 the second UL initial BWP is for receiving random access request on a first RACH resource
set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third
UL initial BWP is for receiving random access request on the first RACH resource set from a
terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the second UL initial BWP is for receiving random access request on a fifth RACH resource
10 set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third
UL initial BWP is for receiving random access request on the ninth RACH resource set from a
terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH.

19. A communication apparatus, comprising:

a transceiver unit, configured to receive a system information block 1, SIB1, on a downlink,
15 DL, initial bandwidth part, BWP, wherein the SIB1 comprises random access channel, RACH,
configuration information on a DL initial BWP, wherein the RACH configuration information
indicates M RACH resource sets, the M RACH resource sets correspond to N terminal types, the
N terminal types are associated with bandwidth types and/or random access types of terminals,
and M and N are positive integers, wherein the SIB1 further configures at least one uplink, UL,
20 initial BWP corresponding to the N terminal types; and

a processing unit, configured to determine, based on the RACH configuration information, a
target RACH resource set used by the communication apparatus to send a random access request
to a network device, wherein a bandwidth type of the communication apparatus belongs to the
bandwidth types associated with the N terminal types.

25 20. The communication apparatus according to claim 19, wherein

a bandwidth type of the at least one terminal is NR_legacy or NR_REDCAP type2, wherein
a bandwidth of NR_legacy is 100MHz, and a bandwidth of NR_REDCAP type2 is 20MHz;

each of the M RACH resource sets includes a combination of a time domain resource, a
frequency domain resource, and an orthogonal code sequence resource of a RACH.

30 21. The communication apparatus according to claim 19 or 20, wherein the RACH
configuration information further indicates one of a first RACH configuration or a second RACH

configuration, wherein the first RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is less than N, and M is equal to 1;

the second RACH configuration is that the M RACH resource sets correspond to the N terminal types, M is equal to N, and M is greater than 1.

5 22. The communication apparatus according to any one of claims 19 to 21, wherein
a terminal of bandwidth type NR_REDCAP type2 and a terminal of bandwidth type NR_legacy correspond to a same UL initial BWP.

23. The communication apparatus according to claim 22, wherein
the same UL initial BWP is for receiving random access requests on a first RACH resource
10 set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH and a
terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the same UL initial BWP is for receiving random access requests on a fifth RACH resource
set from a terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH
and on a ninth RACH resource set from a terminal of a terminal type determined based on
15 NR_legacy and 4-step RACH.

24. The communication apparatus according to any one of claims 19 to 21, wherein
a terminal of a bandwidth type NR_REDCAP type2 corresponds to a second UL initial BWP,
a terminal of a bandwidth type NR_legacy corresponds to a third UL initial BWP, wherein
the second UL initial BWP is for receiving random access request on a first RACH resource
20 set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third
UL initial BWP is for receiving random access request on the first RACH resource set from a
terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH; or

the second UL initial BWP is for receiving random access request on a fifth RACH resource
set from a terminal of a terminal type determined based on NR_legacy and 4-step RACH, the third
25 UL initial BWP is for receiving random access request on the ninth RACH resource set from a
terminal of a terminal type determined based on NR_REDCAP type2 and 4-step RACH.

25. A communication apparatus, configured to implement the method according to any one
of claims 1 to 6.

26. A communication apparatus, configured to implement the method according to any one
30 of claims 7 to 12.

27. A communication apparatus, comprising a memory and a processor, wherein the memory

stores instructions/code; and when executing the instructions/code stored in the memory, the processor implements the method according to any one of claims 1 to 6.

28. A communication apparatus, comprising a memory and a processor, wherein the memory stores instructions/code; and when executing the instructions/code stored in the memory, the
5 processor implements the method according to any one of claims 7 to 12.

29. A computer-readable storage medium, configured to store instructions/code, wherein when the instructions/code are/is executed by a processor of an electronic device, the electronic device is enabled to implement the method according to any one of claims 1 to 6.

30. A computer-readable storage medium, configured to store instructions/code, wherein
10 when the instructions/code are/is executed by a processor of an electronic device, the electronic device is enabled to implement the method according to any one of claims 7 to 12.

31. A communication system, comprising the communication apparatus according to claim 27 and the communication apparatus according to claim 28.