

CLAIMS

1. A method for wireless communication, comprising:

transmitting, by a network device, a Synchronization Signal Block, SSB, to a terminal device, the SSB comprising Primary Synchronization Signal, PSS, Secondary Synchronization Signal, SSS, and Physical Broadcasting Channel, PBCH;

wherein the SSB comprises four consecutive symbols in time domain, which are symbol S0, symbol S1, symbol S2 and symbol S3 in sequence; and

the PSS is transmitted on the symbol S0, the SSS is transmitted on the symbol S2, wherein,

the PBCH is transmitted on three symbols which are the symbol S1, the symbol S2 and the symbol S3;

wherein a frequency range of the PSS is a first bandwidth and a frequency range of the SSS is the first bandwidth;

a frequency range of the PBCH transmitted on the symbol S1 is a second bandwidth, a frequency range of the PBCH transmitted on the symbol S3 is the second bandwidth, and

a frequency range of the PBCH transmitted on the symbol S2 is a third bandwidth;

wherein the first bandwidth does not overlap with the third bandwidth, and

the second bandwidth is equal to a bandwidth of 20 Physical Resource Blocks, PRBs.

2. The method of claim 1, wherein the third bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, and the first sub-bandwidth is spaced apart from the second sub-bandwidth;

wherein the first bandwidth is between the first sub-bandwidth and the second sub-bandwidth.

3. The method of claim 2, wherein a highest frequency of the first sub-bandwidth is equal to a highest frequency of the second bandwidth and a lowest frequency of the

second sub-bandwidth is equal to a lowest frequency of the second bandwidth.

4. The method of any one of claims 1-3, further comprising:

mapping, by the network device, the PBCH to the symbol S1, the symbol S2 and the symbol S3, in an order of: first from low-frequency to high-frequency of the symbol S1, then from low-frequency to high-frequency of the symbol S2, and last from low-frequency to high-frequency of the symbol S3.

5. A method for wireless communication, comprising:

receiving, by a terminal device, a Synchronization Signal Block, SSB, the SSB comprising Primary Synchronization Signal, PSS, Secondary Synchronization Signal, SSS, and Physical Broadcasting Channel, PBCH;

wherein the SSB comprises four consecutive symbols in time domain, which are symbol S0, symbol S1, symbol S2 and symbol S3 in sequence; and

the PSS is transmitted on the symbol S0, the SSS is transmitted on the symbol S2, wherein,

the PBCH is transmitted on three symbols which are the symbol S1, the symbol S2 and the symbol S3;

wherein a frequency range of the PSS is a first bandwidth and a frequency range of the SSS is the first bandwidth;

a frequency range of the PBCH transmitted on the symbol S1 is a second bandwidth, a frequency range of the PBCH transmitted on the symbol S3 is the second bandwidth, and

a frequency range of the PBCH transmitted on the symbol S2 is a third bandwidth;

wherein the first bandwidth does not overlap with the third bandwidth, and

the second bandwidth is equal to a bandwidth of 20 Physical Resource Blocks, PRBs.

6. The method of claim 5, wherein the first bandwidth is a subset of the second bandwidth and the third bandwidth is a subset of the second bandwidth.

7. The method of claim 5 or 6, wherein the third bandwidth is within the frequency

range of the second bandwidth.

8. The method of any one of claims 5-7, wherein a sum of the frequency range of the first bandwidth and the frequency range of the third bandwidth is a part of the frequency range of the second bandwidth.

9. The method of any one of claims 5-8, wherein the third bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, and the first sub-bandwidth is spaced apart from the second sub-bandwidth;

wherein the first bandwidth is between the first sub-bandwidth and the second sub-bandwidth.

10. The method of claim 8, wherein a highest frequency of the first sub-bandwidth is equal to a highest frequency of the second bandwidth and a lowest frequency of the second sub-bandwidth is equal to a lowest frequency of the second bandwidth.

11. The method of claim 8, wherein a lowest frequency of the first sub-bandwidth is higher than a highest frequency of the first bandwidth and a highest frequency of the second sub-bandwidth is lower than a lowest frequency of the first bandwidth.

12. The method of any one of claims 5-11, further comprising:

de-mapping, by the terminal device, the PBCH on the symbol S1, the symbol S2 and the symbol S3, in an order of: first from low-frequency to high-frequency of the symbol S1, then from low-frequency to high-frequency of the symbol S2, and last from low-frequency to high-frequency of the symbol S3.

13. A network device, comprising a transmission unit, wherein

the transmission unit is configured to transmit a Synchronization Signal Block, SSB, to a terminal device, the SSB comprising Primary Synchronization Signal, PSS, Secondary Synchronization Signal, SSS, and Physical Broadcasting Channel, PBCH;

wherein the SSB comprises four consecutive symbols in time domain, which are symbol S0, symbol S1, symbol S2 and symbol S3 in sequence; and

the PSS is transmitted on the symbol S0, the SSS is transmitted on the symbol

S2, wherein,

the PBCH is transmitted on three symbols which are the symbol S1, the symbol S2 and the symbol S3;

wherein a frequency range of the PSS is a first bandwidth and a frequency range of the SSS is the first bandwidth;

a frequency range of the PBCH transmitted on the symbol S1 is a second bandwidth, a frequency range of the PBCH transmitted on the symbol S3 is the second bandwidth, and

a frequency range of the PBCH transmitted on the symbol S2 is a third bandwidth;

wherein the first bandwidth does not overlap with the third bandwidth, and

the second bandwidth is equal to a bandwidth of 20 Physical Resource Blocks, PRBs.

14. The network device of claim 13, wherein the first bandwidth is a subset of the second bandwidth and the third bandwidth is a subset of the second bandwidth.

15. The network device of claim 13 or 14, wherein the third bandwidth is within the frequency range of the second bandwidth.

16. The network device of any one of claims 13-15, wherein a sum of the frequency range of the first bandwidth and the frequency range of the third bandwidth is a part of the frequency range of the second bandwidth.

17. The network device of any one of claims 13-16, wherein wherein the third bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, and the first sub-bandwidth is spaced apart from the second sub-bandwidth;

wherein the first bandwidth is between the first sub-bandwidth and the second sub-bandwidth.

18. The network device of claim 17, wherein a highest frequency of the first sub-bandwidth is equal to a highest frequency of the second bandwidth and a lowest frequency of the second sub-bandwidth is equal to a lowest frequency of the second

bandwidth.

19. The network device of claim 17, wherein a lowest frequency of the first sub-bandwidth is higher than a highest frequency of the first bandwidth and a highest frequency of the second sub-bandwidth is lower than a lowest frequency of the first bandwidth.

20. The network device of any one of claims 13-19, wherein the transmission unit is further configured to:

map the PBCH to the symbol S1, the symbol S2 and the symbol S3, in an order of: first from low-frequency to high-frequency of the symbol S1, then from low-frequency to high-frequency of the symbol S2, and last from low-frequency to high-frequency of the symbol S3.

21. A terminal device, comprising an acquisition unit, wherein

the acquisition unit is configured to receive a Synchronization Signal Block, SSB, the SSB comprising Primary Synchronization Signal, PSS, Secondary Synchronization Signal, SSS, and Physical Broadcasting Channel, PBCH;

wherein the SSB comprises four consecutive symbols in time domain, which are symbol S0, symbol S1, symbol S2 and symbol S3 in sequence; and

the PSS is transmitted on the symbol S0, the SSS is transmitted on the symbol S2, wherein,

the PBCH is transmitted on three symbols which are the symbol S1, the symbol S2 and the symbol S3;

wherein a frequency range of the PSS is a first bandwidth and a frequency range of the SSS is the first bandwidth;

a frequency range of the PBCH transmitted on the symbol S1 is a second bandwidth, a frequency range of the PBCH transmitted on the symbol S3 is the second bandwidth, and

a frequency range of the PBCH transmitted on the symbol S2 is a third bandwidth;

wherein the first bandwidth does not overlap with the third bandwidth, and the second bandwidth is equal to a bandwidth of 20 Physical Resource Blocks,

PRBs.

22. The terminal device of claim 21, wherein the first bandwidth is a subset of the second bandwidth and the third bandwidth is a subset of the second bandwidth.

23. The terminal device of claim 21 or 22, wherein the third bandwidth is within the frequency range of the second bandwidth.

24. The terminal device of any one of claims 21-23, wherein a sum of the frequency range of the first bandwidth and the frequency range of the third bandwidth is a part of the frequency range of the second bandwidth.

25. The terminal device of any one of claims 21-24, wherein the third bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, and the first sub-bandwidth is spaced apart from the second sub-bandwidth;

wherein the first bandwidth is between the first sub-bandwidth and the second sub-bandwidth.

26. The terminal device of claim 25, wherein a highest frequency of the first sub-bandwidth is equal to a highest frequency of the second bandwidth and a lowest frequency of the second sub-bandwidth is equal to a lowest frequency of the second bandwidth.

27. The terminal device of claim 25, wherein a lowest frequency of the first sub-bandwidth is higher than a highest frequency of the first bandwidth and a highest frequency of the second sub-bandwidth is lower than a lowest frequency of the first bandwidth.

28. The terminal device of any one of claims 21-27, wherein the acquisition unit is further configured to:

de-map the PBCH on the symbol S1, the symbol S2 and the symbol S3, in an order of: first from low-frequency to high-frequency of the symbol S1, then from low-frequency to high-frequency of the symbol S2, and last from low-frequency to high-

frequency of the symbol S_3 .