

CLAIMS

1. An initial access method, wherein the method comprises:

receiving, on a time domain resource corresponding to a synchronization signal/physical broadcast channel SS/PBCH block SSB set, one or more SSBs comprised in the SSB set, wherein a maximum value of a quantity of SSBs in the SSB set is $L_{\max}$, $L_{\max} > 64$, and a time-frequency resource of the one or more SSBs is related to a system frame number SFN that carries the one or more SSBs.

2. An initial access method, comprising:

sending, on a time domain resource corresponding to a synchronization signal/physical broadcast channel SS/PBCH block SSB set, one or more SSBs comprised in the SSB set, wherein a maximum value of a quantity of SSBs in the SSB set is $L_{\max}$, $L_{\max} > 64$, and a time-frequency resource of the one or more SSBs is related to a system frame number SFN that carries the one or more SSBs.

3. The initial access method according to claim 1 or 2, wherein the time domain resource is in one or more earliest consecutive system frames in time domain in the SSB period.

4. The initial access method according to claim 3, wherein the system frame comprises a plurality of consecutive slots, and at least one of the plurality of slots is capable of supporting transmission of at least two SSBs.

5. The initial access method according to claim 3 or 4, wherein a subcarrier spacing SCS is 30 kilohertz kHz, and a symbol location of the time domain resource in the one or more consecutive system frames satisfies the following:

$$(X + 14 * n + N_{\text{slot}}^{\text{frame}, \mu} * 14 * \text{SFN}_{\text{SSB}}) \bmod N_{\text{symbol}}^{\text{frame}, \mu}, \text{ wherein}$$

when $\text{SFN}_{\text{SSB}} \bmod (T_{\text{SSB_period}} / T_{\text{frame}, \mu}) = \{0, 1, \dots, \left\lfloor \frac{L_{\max}}{N_{\text{SSB}}^{\text{frame}, \mu}} \right\rfloor - 1\}$, $n = \{0, 1, 2, \dots, N_{\text{slot}}^{\text{frame}, \mu} - 1\}$; or

$$\text{when } \text{SFN}_{\text{SSB}} \bmod (T_{\text{SSB_period}} / T_{\text{frame}, \mu}) = \left\lfloor \frac{L_{\max}}{N_{\text{SSB}}^{\text{frame}, \mu}} \right\rfloor, \quad n = \{0, 1, 2, \dots, \left\lfloor \frac{L_{\max} \bmod N_{\text{SSB}}^{\text{frame}, \mu}}{N_{\text{SSB}}^{\text{slot}, \mu}} \right\rfloor - 1\};$$

and

n is a slot number, $N_{\text{symbol}}^{\text{frame}, \mu}$ is a quantity of symbols in one system frame corresponding to a corresponding subcarrier spacing, $N_{\text{slot}}^{\text{frame}, \mu}$ is a quantity of slots in one system frame corresponding to the corresponding subcarrier spacing, SFN_{SSB} is a number of a system frame in which an SSB is located, $L_{\max}$ is a quantity of SSBs comprised in the SSB set, $N_{\text{SSB}}^{\text{slot}, \mu}$ is a quantity of SSBs in one

slot corresponding to the corresponding subcarrier spacing, $N_{SSB}^{frame,\mu}$ is a quantity of SSBs in one system frame corresponding to the corresponding subcarrier spacing, T_{SSB_period} is an SSB sending period, $T_{frame,\mu}$ is system frame duration, $X = \{2,8\}$, and $\{2,8\}$ indicates that start symbols of two SSBs in one slot are a symbol 2 and a symbol 8, respectively.

6. The initial access method according to claim 3 or 4, wherein a subcarrier spacing SCS is 120 kilohertz kHz, and a symbol location of the time domain resource in the one or more consecutive system frames satisfies the following:

$$(X+28*n+N_{slot}^{frame,\mu}*14*SFN_{SSB}) \bmod N_{symbol}^{frame,\mu}, \text{ wherein}$$

$$\text{when } SFN_{SSB} \bmod (T_{SSB_period}/T_{frame,\mu}) = \{0,1, \dots, \left\lfloor \frac{L_{max}}{N_{SSB}^{frame,\mu}} \right\rfloor - 1\}, n = \{0,1,2, \dots, N_{slot}^{frame,\mu} - 1\};$$

or

$$\text{when } SFN_{SSB} \bmod (T_{SSB_period}/T_{frame,\mu}) = \left\lfloor \frac{L_{max}}{N_{SSB}^{frame,\mu}} \right\rfloor, n = \{0,1,2, \dots, \left\lfloor \frac{L_{max} \bmod N_{SSB}^{frame,\mu}}{N_{SSB}^{slot,\mu}} \right\rfloor - 1\};$$

and

n is a slot number, $N_{symbol}^{frame,\mu}$ is a quantity of symbols in one system frame corresponding to a corresponding subcarrier spacing, $N_{slot}^{frame,\mu}$ is a quantity of slots in one system frame corresponding to the corresponding subcarrier spacing, SFN_{SSB} is a number of a system frame in which an SSB is located, L_{max} is a quantity of SSBs comprised in the SSB set, $N_{SSB}^{slot,\mu}$ is a quantity of SSBs in one slot corresponding to the corresponding subcarrier spacing, $N_{SSB}^{frame,\mu}$ is a quantity of SSBs in one system frame corresponding to the corresponding subcarrier spacing, T_{SSB_period} is an SSB sending period, $T_{frame,\mu}$ is system frame duration, $X = \{4,8,16,20\}$, and $\{4,8,16,20\}$ indicates that start symbols of four SSBs in one slot are a symbol 4, a symbol 8, a symbol 16, and a symbol 20, respectively.

7. The initial access method according to claim 3 or 4, wherein a subcarrier spacing SCS is 480 kilohertz kHz or 960 kilohertz kHz, and a symbol location of the time domain resource in the one or more consecutive system frames satisfies the following:

$$(X+14*n+N_{slot}^{frame,\mu}*14*SFN_{SSB}) \bmod N_{symbol}^{frame,\mu}, \text{ wherein}$$

$$\text{when } SFN_{SSB} \bmod (T_{SSB_period}/T_{frame,\mu}) = \{0,1, \dots, \left\lfloor \frac{L_{max}}{N_{SSB}^{frame,\mu}} \right\rfloor - 1\}, n = \{0,1,2, \dots, N_{slot}^{frame,\mu} - 1\};$$

or

$$\text{when } SFN_{SSB} \bmod (T_{SSB_period}/T_{frame,\mu}) = \left\lfloor \frac{L_{max}}{N_{SSB}^{frame,\mu}} \right\rfloor, n = \{0,1,2, \dots, \left\lfloor \frac{L_{max} \bmod N_{SSB}^{frame,\mu}}{N_{SSB}^{slot,\mu}} \right\rfloor - 1\};$$

and

n is a slot number, $N_{\text{symbol}}^{\text{frame},\mu}$ is a quantity of symbols in one system frame corresponding to a corresponding subcarrier spacing, $N_{\text{slot}}^{\text{frame},\mu}$ is a quantity of slots in one system frame corresponding to the corresponding subcarrier spacing, SFN_{SSB} is a number of a system frame in which an SSB is located, L_{max} is a quantity of SSBs comprised in the SSB set, $N_{\text{SSB}}^{\text{slot},\mu}$ is a quantity of SSBs in one slot corresponding to the corresponding subcarrier spacing, $N_{\text{SSB}}^{\text{frame},\mu}$ is a quantity of SSBs in one system frame corresponding to the corresponding subcarrier spacing, $T_{\text{SSB_period}}$ is an SSB sending period, $T_{\text{frame},\mu}$ is system frame duration, $X = \{2,9\}$, and $\{2,9\}$ indicates that start symbols of two SSBs in one slot are a symbol 2 and a symbol 9, respectively.

8. The initial access method according to claim 3 or 4, wherein a subcarrier spacing SCS is 240 kilohertz kHz, and a symbol location of the time domain resource in the one or more consecutive system frames satisfies the following:

$$(X + 56 * n + N_{\text{slot}}^{\text{frame},\mu} * 14 * \text{SFN}_{\text{SSB}}) \bmod N_{\text{symbol}}^{\text{frame},\mu}, \text{ wherein}$$

$$\text{when } \text{SFN}_{\text{SSB}} \bmod (T_{\text{SSB_period}} / T_{\text{frame},\mu}) = \{0, 1, \dots, \left\lfloor \frac{L_{\text{max}}}{N_{\text{SSB}}^{\text{frame},\mu}} \right\rfloor - 1\}, n = \{0, 1, 2, \dots, N_{\text{slot}}^{\text{frame},\mu} - 1\};$$

or

$$\text{when } \text{SFN}_{\text{SSB}} \bmod (T_{\text{SSB_period}} / T_{\text{frame},\mu}) = \left\lfloor \frac{L_{\text{max}}}{N_{\text{SSB}}^{\text{frame},\mu}} \right\rfloor, n = \{0, 1, 2, \dots, \left\lfloor \frac{L_{\text{max}} \bmod N_{\text{SSB}}^{\text{frame},\mu}}{N_{\text{SSB}}^{\text{slot},\mu}} \right\rfloor - 1\};$$

and

n is a slot number, $N_{\text{symbol}}^{\text{frame},\mu}$ is a quantity of symbols in one system frame corresponding to a corresponding subcarrier spacing, $N_{\text{slot}}^{\text{frame},\mu}$ is a quantity of slots in one system frame corresponding to the corresponding subcarrier spacing, SFN_{SSB} is a number of a system frame in which an SSB is located, L_{max} is a quantity of SSBs comprised in the SSB set, $N_{\text{SSB}}^{\text{slot},\mu}$ is a quantity of SSBs in one slot corresponding to the corresponding subcarrier spacing, $N_{\text{SSB}}^{\text{frame},\mu}$ is a quantity of SSBs in one system frame corresponding to the corresponding subcarrier spacing, $T_{\text{SSB_period}}$ is an SSB sending period, $T_{\text{frame},\mu}$ is system frame duration, $X = \{8, 12, 16, 20, 32, 36, 40, 44\}$, and $\{8, 12, 16, 20, 32, 36, 40, 44\}$ indicates that start symbols of eight SSBs in one slot are a symbol 8, a symbol 12, a symbol 16, a symbol 20, a symbol 32, a symbol 36, a symbol 40, and a symbol 44, respectively.

9. The initial access method according to any one of claims 1 to 8, wherein L_{max} SSBs comprise an SSB# i whose index is i , i is a natural number, and $0 \leq i \leq L_{\text{max}} - 1$; and

the SSB#i and a control resource set CORESET0#i corresponding to the SSB#i occupy a same time domain resource and different frequency domain resources, and the SSB#i and a system information block SIB1#i corresponding to the SSB#i occupy a same time domain resource and different frequency domain resources; or

the SSB#i and a control resource set CORESET0#i corresponding to the SSB#i occupy different time domain resources, and the SSB#i and a system information block SIB1#i corresponding to the SSB#i occupy different time domain resources.

10. The initial access method according to claim 9, wherein that the SSB#i and a system information block SIB1#i corresponding to the SSB#i occupy different time domain resources comprises:

time domain resources occupied by the system information block SIB1#i corresponding to the SIB1#i comprise and are more than time domain resources occupied by the SSB#i.

11. The initial access method according to any one of claims 1 to 10, wherein pieces of downlink signaling corresponding to a same SSB are transmitted in a same slot in a same beam direction; and

the downlink signaling comprises one or more of the following: a control resource set 0 CORESET0, a system information block 1 SIB1, a random access response RAR, a Msg4, paging, or other system information OSI.

12. The initial access method according to claim 11, wherein pieces of uplink signaling corresponding to a same SSB are transmitted on a same time domain resource in a same beam direction; and

the uplink signaling comprises one or more of the following: a physical random access channel PRACH, a Msg3, an acknowledgment ACK, and a Msg5.

13. An initial access method, comprising: sending, on a time domain resource corresponding to a synchronization signal/physical broadcast channel SS/PBCH block SSB set, one or more SSBs in the SSB set, wherein a maximum value of a quantity of SSBs in the SSB set is $L_{\max}$, $L_{\max} > 64$, and a time-frequency resource of the one or more SSBs is related to a system frame number SFN that carries the one or more SSBs.

14. A communication apparatus, comprising a receiving module, wherein

the receiving module is configured to receive, on a time domain resource of a synchronization signal/physical broadcast channel SS/PBCH block SSB set, one or more SSBs comprised in the SSB set, wherein a maximum value of a quantity of SSBs in the SSB set is $L_{\max}$, $L_{\max} > 64$, and a time-frequency resource of the one or more SSBs is related to a system frame number SFN that carries the one or more SSBs.

15. A communication apparatus, comprising a sending module, wherein
the sending module is configured to send, on a time domain resource of a synchronization signal/physical broadcast channel SS/PBCH block SSB set, one or more SSBs comprised in the SSB set, wherein a maximum value of a quantity of SSBs in the SSB set is $L_{\max}$, $L_{\max} > 64$, and a time-frequency resource of the one or more SSBs in the SSB set is related to a system frame number SFN that carries the one or more SSBs.

16. A communication apparatus, comprising a processor, wherein the processor is coupled to a memory; and

the processor is configured to execute a computer program stored in the memory, so that the communication apparatus performs the initial access method according to any one of claims 1 to 12, or the communication apparatus performs the initial access method according to claim 13.

17. A communication apparatus, comprising a processor and a memory, wherein

the memory is configured to store a computer program, and when the processor executes the computer program, the communication apparatus is enabled to perform the initial access method according to any one of claims 1 to 12, or the communication apparatus is enabled to perform the initial access method according to claim 13.

18. A chip system, comprising a processor and a memory, wherein

the memory is configured to store a computer program, and when the processor executes the computer program, the communication apparatus is enabled to perform the initial access method according to any one of claims 1 to 12, or the communication apparatus is enabled to perform the initial access method according to claim 13.

19. A chip system, comprising a processor, wherein the processor is coupled to a memory; and

the processor is configured to execute a computer program stored in the memory, so that the communication apparatus performs the initial access method according to any one of claims 1 to 12, or the communication apparatus performs the initial access method according to claim 13.