

CLAIMS

1. An information transmission method, comprising:

5 sending a synchronization signal according to a target numerology set, the target numerology set being determined from multiple numerology sets,

 wherein the synchronization signal comprises a Primary Synchronization Signal, PSS, and a Secondary Synchronization Signal, SSS, corresponding to the PSS,

 wherein the target numerology set comprises a first numerology set and a
10 second numerology set;

 determining the target numerology set from the multiple numerology sets comprises: selecting the first numerology set from a first subset of the multiple numerology sets, wherein the first subset comprises at least one of the multiple numerology sets, and selecting the second numerology set from a second subset of the
15 multiple numerology sets, wherein the second subset comprises at least one of the multiple numerology sets, the first subset and the second subset comprise at least one different numerology set; and

 sending the synchronization signal according to the target numerology set comprises: sending the PSS according to the first numerology set, and sending the SSS
20 according to the second numerology set.

2. The method of claim 1, further comprising:

 determining the target numerology set from the multiple numerology sets.

25 3. The method of claim 1 or 2, wherein the target numerology set is determined from the multiple numerology sets according to at least one of the following information:

 a carrier frequency for sending the synchronization signal;

 a transmission environment of the synchronization signal;

 coverage of a carrier, a cell or a transmission node for sending the
30 synchronization signal;

 transmit power for sending the synchronization signal; or

 form, height, direction and a number of antenna array elements of a transmit antenna for sending the synchronization signal.

4. The method of claim 1, wherein a numerology set configured for sending the PSS in the target numerology set is the same as a numerology set configured for sending the SSS.
5. The method of claim 1, wherein a difference of time-domain starting locations of the PSS and the SSS corresponding to the PSS is determined according to a carrier frequency of the synchronization signal.
6. The method of claim 1, wherein a time-domain difference of time-domain starting locations of the PSS and the SSS corresponding to the PSS belongs to a time-domain difference set and the time-domain difference set is a finite set; and/or,
a difference of frequency-domain starting locations of the PSS and the SSS corresponding to the PSS belongs to a frequency-domain difference set and the frequency-domain difference set is a finite set.
7. The method of claim 6, wherein at least one of the time-domain difference of the time-domain starting locations of the PSS and the SSS corresponding to the PSS or the difference of the frequency-domain starting locations of the PSS and the SSS corresponding to the PSS is not zero.
8. The method of claim 6 or 7, wherein
a time-frequency location occupied by the PSS and a time-frequency location occupied by the SSS corresponding to the PSS are not overlapped.
9. The method of any one of claims 1-8, further comprising:
sending master system information according to a numerology set corresponding to the master system information.
10. The method of claim 9, wherein the numerology set corresponding to the master system information is the same as or different from the target numerology set.
11. The method of claim 9 or 10, further comprising:
determining a time-frequency location of the master system information

according to a time-frequency location of the synchronization signal;
wherein sending the master system information comprises:
sending the master system information according to the time-frequency location
of the master system information.

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12. The method of claim 1, wherein determining the time-frequency location of the
master system information according to the time-frequency location of the
synchronization signal comprises:

10 determining a time-domain starting location of the master system information
according to at least one of a time-frequency starting location of the PSS, a time-domain
starting location of the SSS or a time-domain difference of time-domain starting
locations of the PSS and the SSS corresponding to the PSS.

13. The method of claim 9 or 10, wherein the synchronization signal is configured to
15 indicate at least one of a time-frequency location, a modulation manner or a
corresponding numerology set of the master system information.

14. The method of claim 13, wherein all or part of a sequence corresponding to the
synchronization signal or a mask of the synchronization signal is configured to indicate
20 at least one of the time-frequency location, the modulation manner or the corresponding
numerology set of the master system information.

15. The method of any one of claims 1-14, wherein the numerology set comprises at
least one of the following parameters:

25 a subcarrier spacing, a subcarrier number at a specific bandwidth, a number of
subcarriers in a Physical Resource Block (PRB), a length of an Orthogonal Frequency
Division Multiplexing (OFDM) symbol, a length of a Cyclic Prefix (CP) of the OFDM
symbol, a point number of Fourier transform or inverse Fourier transform for generating
an OFDM signal, a number of OFDM symbols in a Transmission Time Interval (TTI)
30 or a number of TTIs in a specific length of time.

16. The method of any one of claims 1-15, wherein the multiple numerology sets for
determining the target numerology set exist in a time period from establishment to

disabling of a carrier, a cell or a transmission node for sending the synchronization signal.

17. An information transmission device, comprising:

5 a transceiver unit, configured to send a synchronization signal according to a target numerology set, the target numerology set being determined from multiple numerology sets,

 wherein the synchronization signal comprises a Primary Synchronization Signal, PSS, and a Secondary Synchronization Signal, SSS, corresponding to the PSS,

10 wherein the target numerology set comprises a first numerology set and a second numerology set;

 wherein the information transmission device further comprises a processing unit, configured to select the first numerology set from a first subset of the multiple numerology sets, and select the second numerology set from a second subset of the multiple numerology sets, wherein the first subset comprises at least one of the multiple numerology sets, the second subset comprises at least one of the multiple numerology sets, the first subset and the second subset comprise at least one different numerology set; and

 wherein the transceiver unit is further configured to send the synchronization signal according to the target numerology set comprises: sending the PSS according to the first numerology set, and send the SSS according to the second numerology set.