What is claimed is:

1. An uplink synchronization method, applied to a first terminal, comprising:

obtaining first information and/or performing uplink and/or downlink synchronization in the case of one or more of the followings:

that a duration until a first timer times out is less than or equal to a first preconfigured duration;

that a first indication sent by a network side is received; wherein the first indication is used to instruct the first terminal to obtain the first information and/or perform the uplink and/or downlink synchronization; or

that uplink synchronization loss is detected or imminent uplink synchronization loss is detected;

wherein the first information represents information related to uplink synchronization.

2. The method according to claim 1, wherein the first information comprises one or more of the followings:

ephemeris information;

Global Navigation Satellite System (GNSS) information of the first terminal;

common Timing Advance (TA);

one or more reference positions;

position information and/or orbital information of a first satellite;

position information and/or orbital information of a second satellite;

position difference information between the first satellite and the second satellite;

position information and/or altitude information of a ground base station of the first satellite; or

position information and/or height information of a ground base station of the second satellite; wherein

the second satellite represents a satellite that provides communication service to the first terminal; the first satellite represents a satellite that provides communication service to the first terminal prior to the second satellite.

3. The method according to claim 1 or 2, wherein the obtaining the first information comprises one or more of the followings:

obtaining the first information through a first system message of a first satellite and/or a second satellite;

obtaining the first information through network positioning;

obtaining the first information by initiating a random access process; or

obtaining the first information by activating preconfigured resource in a non-random access process; wherein

the second satellite represents a satellite that provides communication service to the first terminal; the first satellite represents a satellite that provides communication service to the first terminal prior to the second satellite; the first system message of the first satellite and/or the second satellite carries first information related to the first satellite and/or the second satellite.

4. The method according to claim 1 or 2, wherein the first indication is further used to indicate one or more of the followings:

to read system information;

to read information related to uplink synchronization in the system information;

information of one or more of an antenna position, an antenna angle, or an antenna configuration of a second satellite;

position information and/or ephemeris information of the second satellite;

a sending period and/or sending position of a Synchronization Signal Block Measurement Timing Configuration (SMTC) of the second satellite;

to perform a handover to a same cell; or

resource coordination information between a first cell of a first satellite and a second cell of a second satellite; wherein

the second satellite represents a satellite that provides communication service to the first terminal; the first satellite represents a satellite that provides communication service to the first terminal prior to the second satellite.

5. The method according to claim 1 or 2, wherein the first indication comprises one or more of the followings:

ephemeris information in system information and/or dedicated signaling;

service time information of a satellite in the system information and/or dedicated signaling;

indication information for satellite handover;

indication information for handover between different beams with a same Physical Cell Identifier (PCI); or

indication information that the first terminal needs to perform the uplink and/or downlink synchronization.

6. The method according to claim 3, wherein, when the obtaining the first information through the first system message of the first satellite and/or the second satellite, the method further comprises:

reporting second information to the network side; wherein the second information represents a position of the first terminal and carries a second indication; the second indication is used to indicate that the first information is about to become invalid;

receiving the first system message of the first satellite and/or the second satellite sent by the network side based on the second indication.

7. The method according to claim 3, wherein the method further comprises:

starting a second timer in the case that a Discontinuous Reception (DRX) state is entered and a start-offset in each cycle is activated;

obtaining the first information in the case that the second timer times out.

8. An uplink synchronization method, applied to a network device, comprising:

sending a first indication to a first terminal; wherein

the first indication is used to instruct the first terminal to obtain first information and/or perform uplink and/or downlink synchronization; the first information represents information related to uplink synchronization.

9. The method according to claim 8, wherein the first indication is further used to indicate one or more of the followings:

to read system information;

to read information related to uplink synchronization in the system information;

information of one or more of an antenna position, an antenna angle, or an antenna configuration of a second satellite;

position information and/or ephemeris information of the second satellite;

a sending period and/or sending position of a Synchronization Signal Block Measurement Timing Configuration (SMTC) of the second satellite;

to perform a handover to a same cell; or

resource coordination information between a first cell of a first satellite and a second cell of a second satellite; wherein

the second satellite represents a satellite that provides communication service to the first terminal; the first satellite represents a satellite that provides communication service to the first terminal prior to the second satellite.

10. The method according to claim 8, further comprising:

receiving second information reported by the first terminal, wherein the second information represents a position of the first terminal and carries a second indication; the second indication is used to indicate that the first information is about to become invalid;

delivering, to the first terminal based on the second indication, a first system message of a first satellite and/or a second satellite, wherein

the first system message carries the first information; the second satellite represents a satellite that provides communication service to the first terminal; and the first satellite represents a satellite that provided communication service to the first terminal prior to the second satellite.

11. An uplink synchronization method, applied to a second terminal, comprising:

obtaining a first System Information Block (SIB) in the case that a first timer times out or does not time out; wherein

the first SIB comprises first information related to uplink synchronization.

12. The method according to claim 11, wherein the first information comprises one or more of the followings:

ephemeris information;

position information and/or orbital information of a satellite;

position information and/or altitude information of a ground base station of the satellite;

Global Navigation Satellite System (GNSS) information of the second terminal;

common Timing Advance (TA);

one or more reference positions.

13. A first terminal comprising: a first processor and a first memory configured to store a computer program executable on the processor, wherein

the first processor is configured to execute the computer program to perform the steps of the method according to any one of claims 1 to 7.

14. A network device comprising: a second processor and a second memory configured to store a computer program executable on the processor, wherein

the second processor is configured to execute the computer program to perform the steps of the method according to any one of claims 8 to 10.

15. A second terminal comprising: a third processor and a third memory configured to store a computer program executable on a processor; wherein

the second processor is configured to execute the computer program to perform the steps of the method according to claim 11 or 12.