

CLAIMS

What is claimed is:

1. A positioning information transmission method, comprising:

receiving, by a terminal device, first information from a network device, wherein the first
5 information is used to request capability information of the terminal device;

sending, by the terminal device, first capability information to the network device, wherein
the first capability information comprises capability information of sending a reference signal by
the terminal device based on a first bandwidth, the first bandwidth is greater than a second
bandwidth, the first bandwidth is used by the terminal device to send the reference signal, and the
10 second bandwidth is used by the terminal device to receive and/or send communication data.; and

sending, by the terminal device, a switching time to the network device, wherein the
switching time is a switching time between sending the reference signal based on the first
bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal
based on the second bandwidth by the terminal device.

2. The method according to claim 1, wherein the switching time comprises a first switching
time and/or a second switching time, the first switching time is a switching time in which the
terminal device switches from sending the reference signal based on the first bandwidth to
~~receiving and/or sending the communication data~~ sending the reference signal based on the second
bandwidth, and the second switching time is a switching time in which the terminal device
20 switches from ~~receiving and/or sending the communication data~~ sending the reference signal based
on the second bandwidth to sending the reference signal based on the first bandwidth.

3. The method according to claim 1, wherein the first bandwidth is used to send an SRS, and
the first bandwidth is not used to send uplink data or receive downlink data.

4. The method according to claim 1, further comprising:

receiving, by the terminal device, second information from a location server, wherein the
second information is used to request positioning capability information of the terminal device;
and

sending, by the terminal device, the first capability information and the switching time to the
location server.

5. The method according to any one of claims 1 to 4, further comprising:

receiving, by the terminal device, first reference signal configuration information from the network device, wherein the first reference signal configuration information indicates the terminal device to send the reference signal based on the first bandwidth; and

5 sending, by the terminal device, based on the first reference signal configuration information, the reference signal based on the first bandwidth.

6. A positioning information transmission method, comprising:

receiving, by a terminal device, second information from a location server, wherein the second information is used to request positioning capability information of the terminal device;

10 sending, by the terminal device, first capability information to the location server, wherein the first capability information comprises capability information of sending a reference signal by the terminal device based on a first bandwidth, the first bandwidth is greater than a second bandwidth, the first bandwidth is used by the terminal device to send the reference signal, and the second bandwidth is used by the terminal device to receive and/or send communication data; and

15 sending, by the terminal device, a switching time to the location server, wherein the switching time is a switching time between sending the reference signal based on the first bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the terminal device.

20 7. The method according to claim 6, wherein the switching time comprises a first switching time and/or a second switching time, the first switching time is a switching time in which the terminal device switches from sending the reference signal based on the first bandwidth to ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the terminal device switches from ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth to sending the reference signal based on the first bandwidth.

25 8. The method according to claim 6, wherein the first bandwidth is used to send an SRS, and the first bandwidth is not used to send uplink data or receive downlink data.

9. The method according to claim 6, further comprising:

receiving, by the terminal device, first information from a network device, wherein the first information is used to request capability information of the terminal device; and

30 sending, by the terminal device, ~~one or more of the first capability information, second capability information,~~ and the switching time to the network device.

10. The method according to claim 9, further comprising:

receiving, by the terminal device, first reference signal configuration information from the network device, wherein the first reference signal configuration information indicates the terminal device to send the reference signal based on the first bandwidth; and

5 sending, by the terminal device, based on the first reference signal configuration information, the reference signal based on the first bandwidth.

11. A positioning information transmission method, comprising:

sending, by a network device, first information to a terminal device, wherein the first information is used to request capability information of the terminal device;

10 receiving, by the network device, first capability information from the terminal device, wherein the first capability information comprises capability information of sending a reference signal by the terminal device based on a first bandwidth, the first bandwidth is greater than a second bandwidth, the first bandwidth is used by the terminal device to send the reference signal, and the second bandwidth is used by the terminal device to receive and/or send communication
15 data; and

receiving, by the network device, a switching time from the terminal device, wherein the switching time is a switching time between sending the reference signal based on the first bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the terminal device.

20 12. The method according to claim 11, wherein the switching time comprises a first switching time and/or a second switching time, the first switching time is a switching time in which the terminal device switches from sending the reference signal based on the first bandwidth to ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the terminal device
25 switches from ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth to sending the reference signal based on the first bandwidth.

13. The method according to claim 11, wherein the first bandwidth is used to send an SRS, and the first bandwidth is not used to send uplink data or receive downlink data.

14. The method according to any one of claims 11 to 13, further comprising:

30 sending, by the network device, first reference signal configuration information to the terminal device, wherein the first reference signal configuration information indicates the terminal

device to send the reference signal based on the first bandwidth.

15. A positioning information transmission method, comprising:

receiving, by a location server, location request information, wherein the location request information is used to request location information of a terminal device;

5 sending, by the location server, second information, wherein the second information is used to request positioning capability information of the terminal device;

receiving, by the location server, first capability information from the terminal device, wherein the first capability information comprises capability information of sending a reference signal by the terminal device based on a first bandwidth, the first bandwidth is greater than a
10 second bandwidth, the first bandwidth is used by the terminal device to send the reference signal, and the second bandwidth is used by the terminal device to receive and/or send communication data; and

receiving, by the location server, a switching time from the terminal device, wherein the switching time is a switching time between sending the reference signal based on the first
15 bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the terminal device.

16. The method according to claim 15, wherein the switching time comprises a first switching time and/or a second switching time, the first switching time is a switching time in which the terminal device switches from sending the reference signal based on the first bandwidth to
20 ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the terminal device switches from ~~receiving and/or sending the communication data~~ sending the reference signal based
on the second bandwidth to sending the reference signal based on the first bandwidth.

17. The method according to claim 15, wherein the first bandwidth is used to send an SRS,
25 and the first bandwidth is not used to send uplink data or receive downlink data.

18. A communication apparatus, comprising a processing unit and a communication unit, wherein

the communication unit is configured to receive first information from a network device, wherein the first information is used to request capability information of the communication
30 apparatus;

the processing unit is configured to determine first capability information, wherein the first

capability information comprises capability information of sending a reference signal by the communication apparatus based on a first bandwidth, the first bandwidth is greater than a second bandwidth, the first bandwidth is used by the communication apparatus to send the reference signal, and the second bandwidth is used by the communication apparatus to receive and send communication data;

the processing unit is further configured to determine a switching time, wherein the switching time is a switching time between sending the reference signal based on the first bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the communication apparatus; and

the communication unit is further configured to send the first capability information and the switching time to the network device.

19. The apparatus according to claim 18, wherein the switching time comprises a first switching time and/or a second switching time, the first switching time is a switching time in which the communication apparatus switches from sending the reference signal based on the first bandwidth to ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the communication apparatus switches from ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth to sending the reference signal based on the first bandwidth; and

the communication unit is further configured to send the switching time to the network device.

20. The apparatus according to claim 18, wherein the first bandwidth is used to send an SRS, and the first bandwidth is not used to send uplink data or receive downlink data.

21. The apparatus according to claim 18, wherein the communication unit is further configured to:

receive second information from a location server, wherein the second information is used to request positioning capability information of the communication apparatus; and

send the first capability information and the switching time to the location server.

22. The apparatus according to any one of claims 18 to 21, wherein the communication unit is further configured to:

receive first reference signal configuration information from the network device, wherein the first reference signal configuration information indicates the communication apparatus to send the

reference signal based on the first bandwidth; and

send, based on the first reference signal configuration information, the reference signal based on the first bandwidth.

23. A communication apparatus, comprising a processing unit and a communication unit,

wherein

the communication unit is configured to receive second information from a location server, wherein the second information is used to request positioning capability information of the communication apparatus;

the processing unit is configured to determine first capability information, wherein the first capability information comprises capability information of sending a reference signal by the communication apparatus based on a first bandwidth, the first bandwidth is greater than a second bandwidth, the first bandwidth is used by the communication apparatus to send the reference signal, and the second bandwidth is used by the communication apparatus to receive and send communication data;

the processing unit is further configured to determine a switching time, wherein the switching time is a switching time between sending the reference signal based on the first bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the communication apparatus; and

the communication unit is further configured to send the first capability information and the switching time to the location server.

24. The apparatus according to claim 23, wherein the switching time comprises a first switching time and/or a second switching time, the first switching time is a switching time in which the communication apparatus switches from sending the reference signal based on the first bandwidth to ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the communication apparatus switches from ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth to sending the reference signal based on the first bandwidth; and

the communication unit is further configured to send the switching time to a network device.

25. The apparatus according to claim 23, wherein the first bandwidth is used to send an SRS, and the first bandwidth is not used to send uplink data or receive downlink data.

26. The apparatus according to claim 23, wherein the communication unit is further configured to:

receive first information from a network device, wherein the first information is used to request capability information of the communication apparatus; and

5 send the first capability information and the switching time to the network device.

27. The apparatus according to claim 26, wherein the communication unit is further configured to:

receive first reference signal configuration information from the network device, wherein the first reference signal configuration information indicates the communication apparatus to send the
10 reference signal based on the first bandwidth; and

send, based on the first reference signal configuration information, the reference signal based on the first bandwidth.

28. A communication apparatus, comprising a processing unit and a communication unit, wherein

15 the processing unit is configured to generate first information, wherein the first information is used to request capability context information of a terminal device;

the communication unit is configured to send the first information to the terminal device;

the communication unit is further configured to receive first capability information from the terminal device, wherein the first capability information comprises capability information of
20 sending a reference signal by the terminal device based on a first bandwidth, the first bandwidth is greater than a second bandwidth, the first bandwidth is used by the terminal device to send the reference signal, and the second bandwidth is used by the terminal device to receive and send communication data; and

the communication unit is further configured to receive a switching time from the terminal
25 device, wherein the switching time is a switching time between sending the reference signal based on the first bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the terminal device.

29. The apparatus according to claim 28, wherein

the switching time comprises a first switching time and/or a second switching time, the first
30 switching time is a switching time in which the terminal device switches from sending the reference signal based on the first bandwidth to ~~receiving and/or sending the communication~~

~~data~~ sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the terminal device switches from ~~receiving and/or sending the communication data~~ sending the reference signal based on the second bandwidth to sending the reference signal based on the first bandwidth.

5 30. The apparatus according to claim 28, wherein the first bandwidth is used to send an SRS, and the first bandwidth is not used to send uplink data or receive downlink data.

31. The apparatus according to any one of claims 28 to 30, wherein the communication unit is further configured to:

10 send first reference signal configuration information to the terminal device, wherein the second reference signal configuration information indicates the terminal device to send the reference signal based on the first bandwidth.

32. A communication apparatus, comprising a processing unit and a communication unit, wherein

15 the communication unit is configured to receive location request information, wherein the location request information is used to request location information of a terminal device;

the processing unit is configured to generate second information, wherein the second information is used to request positioning capability information of the terminal device;

the communication unit is further configured to send the second information;

20 the communication unit is further configured to receive first capability information from the terminal device, wherein the first capability information comprises capability information of sending a reference signal by the terminal device based on a first bandwidth, the first bandwidth is greater than a second bandwidth, the first bandwidth is used by the terminal device to send the reference signal, and the second bandwidth is used by the terminal device to receive and send communication data; and

25 the communication unit is further configured to receive a switching time from the terminal device, wherein the switching time is a switching time between sending the reference signal based on the first bandwidth ~~and receiving and/or sending the communication data~~ and sending a reference signal based on the second bandwidth by the terminal device.

33. The apparatus according to claim 32, wherein

30 the switching time comprises a first switching time and/or a second switching time, the first switching time is a switching time in which the terminal device switches from sending the

reference signal based on the first bandwidth to ~~receiving and/or sending the communication data~~sending the reference signal based on the second bandwidth, and the second switching time is a switching time in which the terminal device switches from ~~receiving and/or sending the communication data~~sending the reference signal based on the second bandwidth to sending the reference signal based on the first bandwidth.

34. The apparatus according to claim 32, wherein the first bandwidth is used to send an SRS, and the first bandwidth is not used to send uplink data or receive downlink data.

35. A communication apparatus, comprising a logic circuit and a communication interface, wherein the communication apparatus is configured to perform the method according to any one of claims 1 to 17.

36. A communication apparatus, comprising a processor and a transceiver, wherein the communication apparatus is configured to perform the method according to any one of claims 1 to 17.

37. A computer-readable storage medium, wherein the computer-readable storage medium stores computer-executable instructions, and when the computer-executable instructions are invoked by an electronic apparatus, the electronic apparatus is enabled to perform the method according to any one of claims 1 to 17.

38. A computer program product, wherein when the computer program product runs on an electronic apparatus, the electronic apparatus is enabled to perform the method according to any one of claims 1 to 17.

39. A communication system, comprising a communication apparatus according to any one of claims 28 to 31, and a communication apparatus according to any one of claims 32-34.