

resource and the aperiodic SRS triggering signaling; the UE transmits the SRS on the uplink BWP according to the determined SRS resource.

For example, if the network device pre-sets five SRS resources for the UE, an aperiodic triggering state corresponding to the SRS resource 1 and the SRS resource 3 is 00, an aperiodic triggering state corresponding to the SRS resource 2 and the SRS resource 4 is 01 and an aperiodic triggering state corresponding to the SRS resource 5 is 10, then the UE determines a target SRS resource for aperiodic SRS transmission on the uplink BWP from the five SRS resources according to the state indicated by the aperiodic SRS triggering signaling. For example, if the state indicated by the aperiodic SRS triggering signaling is 00, then the target SRS resource is the SRS resource 1 and the SRS resource 3. If the state indicated by the aperiodic SRS triggering signaling is 10, the target SRS resource is the SRS resource 5, and so on.

In an embodiment of the disclosure, the SRS parameter configuration includes the time-frequency resource configuration of the SRS resource, and a specific implementation mode of the operation that the UE transmits the SRS on the uplink BWP according to the SRS parameter configuration includes the following operation:

the UE determines a bandwidth for SRS transmission in the SRS resource according to the time-frequency resource configuration of the SRS resource and a bandwidth of the uplink BWP; the UE transmits the SRS on the uplink BWP according to the determined bandwidth.

Specifically, the time-frequency resource configuration of the SRS resource includes an SRS bandwidth configuration and/or SRS frequency-domain frequency hopping configuration of the SRS resource. The UE determines a maximum transmission bandwidth for SRS transmission in the SRS resource according to the bandwidth of the uplink BWP. Within a range of the maximum transmission bandwidth, the UE determines the bandwidth for SRS transmission in the SRS resource according to the SRS bandwidth configuration or the SRS frequency-domain frequency hopping configuration, and then transmits the SRS on the uplink BWP according to the determined bandwidth.

In an embodiment of the disclosure, the SRS parameter configuration includes a spatial relation parameter of the SRS resource, and a specific implementation mode of the operation that the UE transmits the SRS on the uplink BWP according to the

CLAIMS

1. A method for Sounding Reference Signal (SRS) transmission, comprising:
 - determining, by User Equipment (UE), an uplink Bandwidth Part (BWP) which is active;
 - determining, by the UE, an SRS parameter configuration corresponding to the uplink BWP which is active; and
 - transmitting, by the UE, an SRS on the uplink BWP according to the SRS parameter configuration.
2. The method of claim 1, wherein determining, by the UE, the uplink BWP which is active comprises:
 - determining, by the UE, the uplink BWP which is active according to BWP indication information, wherein latest received Downlink Control Information (DCI) for scheduling uplink transmission comprises the BWP indication information.
3. The method of claim 1 or 2, further comprising:
 - receiving, by the UE, high-layer signaling from a network device, wherein the high-layer signaling is for setting an SRS parameter configuration respectively for each uplink BWP of the UE,
 - wherein determining, by the UE, the SRS parameter configuration corresponding to the uplink BWP which is active comprises:
 - determining, by the UE, the SRS parameter configuration corresponding to the uplink BWP which is active according to the high-layer signaling.
4. The method of any one of claims 1-3, wherein the SRS parameter configuration comprises at least one of: a configuration of at least one SRS resource set in the uplink BWP or a configuration of at least one SRS resource in the uplink BWP.
5. The method of claim 4, wherein the configuration of the at least one SRS resource set comprises at least one of: a power control parameter configuration of the at least one SRS resource set, a usage configuration of the at least one SRS resource set, an

aperiodic triggering state corresponding to the at least one SRS resource set, or a Channel State Information Reference Signal (CSI-RS) configuration associated with the at least one SRS resource set.

6. The method of claim 4 or 5, wherein the configuration of the at least one SRS resource comprises at least one of: a time-frequency resource configuration of the at least one SRS resource, a sequence configuration of the at least one SRS resource, an antenna port configuration of the at least one SRS resource, a periodicity configuration of the at least one SRS resource, a spatial relation configuration of the at least one SRS resource, or an aperiodic triggering state corresponding to the at least one SRS resource.

7. The method of any one of claims 1-6, further comprising:

under a condition that DCI which indicates activation of the uplink BWP comprises aperiodic SRS triggering signaling, determining, by the UE, at least one SRS resource set corresponding to the uplink BWP as an SRS resource set which carries SRS transmission triggered by the aperiodic SRS triggering signaling.

8. The method of any one of claims 5-7, wherein the SRS parameter configuration comprises the power control parameter configuration of the at least one SRS resource set; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, transmit power for SRS transmission on the SRS resource set according to the power control parameter configuration of the at least one SRS resource set; and transmitting the SRS on the uplink BWP according to the determined transmit power.

9. The method of any one of claims 5-8, wherein the SRS parameter configuration comprises the usage configuration of the SRS resource set; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, an antenna port, a transmission beam or an SRS

resource number for SRS transmission on the SRS resource set according to the usage configuration of the SRS resource set, and transmitting the SRS on the uplink BWP according to the determined antenna port, transmission beam or SRS resource number.

10. The method of any one of claims 5-9, wherein the SRS parameter configuration comprises the aperiodic triggering state corresponding to the SRS resource set; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, an SRS resource set for aperiodic SRS transmission on the uplink BWP according to the aperiodic triggering state corresponding to the SRS resource set and the aperiodic SRS triggering signaling, and transmitting the SRS on the uplink BWP according to the determined SRS resource set.

11. The method of any one of claims 5-10, wherein the SRS parameter configuration comprises the CSI-RS resource configuration associated with the SRS resource set; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, at least one of a beam or a precoding matrix for SRS transmission on the SRS resource set according to the CSI-RS resource configuration associated with the SRS resource set, and transmitting the SRS on the uplink BWP according to the determined at least one of beam or precoding matrix.

12. The method of any one of claims 6-11, wherein the SRS parameter configuration comprises a spatial relation parameter of the SRS resource; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, a target SRS resource, a CSI-RS resource or a Synchronization Signal Block (SSB) spatially correlated with the SRS resource according to the spatial relation parameter of the SRS resource;

determining, by the UE, a transmission beam of the SRS resource according to the target SRS resource, the CSI-RS resource or the SSB; and

transmitting, by the UE, the SRS on the uplink BWP according to the determined transmission beam.

13. The method of any one of claims 6-12, wherein the SRS parameter configuration comprises the sequence configuration of the SRS resource; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, an SRS sequence for SRS transmission on the SRS resource according to the sequence configuration of the SRS resource, and transmitting the SRS on the uplink BWP according to the determined SRS sequence.

14. The method of any one of claims 6-13, wherein the SRS parameter configuration comprises the periodicity configuration of the SRS resource; and

transmitting, by the UE, the SRS on the uplink BWP according to the SRS parameter configuration comprises:

determining, by the UE, a periodicity operation for SRS transmission on the SRS resource according to the periodicity configuration of the SRS resource, and transmitting the SRS on the uplink BWP according to the determined periodicity operation.

15. User Equipment (UE), comprising a processing unit and a communication unit, wherein the processing unit is configured to determine an uplink Bandwidth Part (BWP) which is active;

the processing unit is further configured to determine a Sounding Reference Signal (SRS) parameter configuration corresponding to the uplink BWP which is active; and

the processing unit is further configured to transmit an SRS on the uplink BWP through the communication unit according to the SRS parameter configuration.

16. The UE of claim 15, wherein the processing unit is further configured to:

determine the uplink BWP which is active according to BWP indication information, wherein latest received Downlink Control Information (DCI) for scheduling uplink transmission comprises the BWP indication information.

17. The UE of claim 15 or 16, wherein the communication unit is further configured to receive high-layer signaling from a network device, wherein the high-layer signaling is for setting an SRS parameter configuration respectively for each uplink BWP of the UE; and

the processing unit is configured to determine the SRS parameter configuration corresponding to the uplink BWP which is active according to the high-layer signaling.

18. The UE of any one of claims 15-17, wherein the SRS parameter configuration comprises at least one of: a configuration of at least one SRS resource set in the uplink BWP or a configuration of at least one SRS resource in the uplink BWP.

19. The UE of claim 18, wherein the configuration of the at least one SRS resource set comprises at least one of: a power control parameter configuration of the at least one SRS resource set, a usage configuration of the at least one SRS resource set, an aperiodic triggering state corresponding to the at least one SRS resource set, or a Channel State Information Reference Signal (CSI-RS) configuration associated with the at least one SRS resource set.

20. The UE of claim 18 or 19, wherein the configuration of the least one SRS resource comprises at least one of: a time-frequency resource configuration of the least one SRS resource, a sequence configuration of the least one SRS resource, an antenna port configuration of the least one SRS resource, a period configuration of the least one SRS resource, a spatial relation configuration of the least one SRS resource, or an aperiodic triggering state corresponding to the least one SRS resource.

21. The UE of any one of claims 15-20, wherein the processing unit is further configured to:

under a condition that the DCI which indicates activation of the uplink BWP comprises aperiodic SRS triggering signaling, determine at least one SRS resource set corresponding to the uplink BWP as an SRS resource set which carries SRS transmission triggered by the aperiodic SRS triggering signaling.

22. The UE of any one of claims 19-21, wherein the SRS parameter configuration comprises the power control parameter configuration of the at least one SRS resource set;

the processing unit is further configured to determine transmit power for SRS transmission on the SRS resource set according to a power control parameter configuration of the at least one SRS resource set; and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined transmit power.

23. The UE of any one of claims 19-22, wherein the SRS parameter configuration comprises the usage configuration of the SRS resource set;

the processing unit is configured to determine an antenna port, a transmission beam or an SRS resource number for SRS transmission on the at least one SRS resource set according to a usage configuration of the at least one SRS resource set; and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined antenna port, transmission beam or SRS resource number.

24. The UE of any one of claims 19-23, wherein the SRS parameter configuration comprises the aperiodic triggering state corresponding to the SRS resource set;

the processing unit is configured to determine an SRS resource set for aperiodic SRS transmission on the uplink BWP according to an aperiodic triggering state corresponding to the at least one SRS resource set and the aperiodic SRS triggering signaling; and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined SRS resource set.

25. The UE of any one of claims 19-24, wherein the SRS parameter configuration comprises the CSI-RS resource configuration associated with the SRS resource set;

the processing unit is configured to determine at least one of a beam or a precoding matrix for SRS transmission on the at least one SRS resource set according to a CSI-RS resource configuration associated with the at least one SRS resource set;

and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined at least one of beam or precoding matrix.

26. The UE of any one of claims 20-25, wherein the SRS parameter configuration comprises a spatial relation parameter of the SRS resource;

the processing unit is configured to: determine a target SRS resource, a CSI-RS resource or a Synchronization Signal Block (SSB) spatially correlated with the SRS resource according to a spatial relation parameter of the least one SRS resource; and determine a transmission beam of the SRS resource according to the target SRS resource, the CSI-RS resource or the SSB; and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined transmission beam.

27. The UE of any one of claims 20-26, wherein the SRS parameter configuration comprises the sequence configuration of the SRS resource;

the processing unit is configured to determine an SRS sequence for SRS transmission on the SRS resource according to the sequence configuration of the SRS resource; and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined SRS sequence.

28. The UE of any one of claims 20-27, wherein the SRS parameter configuration comprises the periodicity configuration of the SRS resource;

the processing unit is configured to determine a periodicity operation for SRS transmission on the SRS resource according to the periodicity configuration of the SRS resource, and

the communication unit is configured to transmit the SRS on the uplink BWP according to the determined periodicity operation.

29. A computer-readable storage medium, storing a computer program configured for electronic data exchange, the computer program enabling a computer to execute an instruction for implementing the steps in the method of any one of claims 1-14.