CLAIMS

What is claimed is:

1. An information transmission method, applied to a first terminal device, wherein the method comprises:

transmitting assistance information to at least one second terminal device in a case that a periodic reporting condition or a preset trigger condition is met, wherein the assistance information is used for the at least one second terminal device to perform sidelink transmission.

2. The method according to claim 1, wherein before the transmitting assistance information to at least one second terminal device in a case that a preset trigger condition is met, the method further comprises:

in a case that first trigger signaling transmitted by a control node is received, determining that the preset trigger condition is met, wherein the first trigger signaling is used to indicate the first terminal device to transmit the assistance information to the at least one second terminal device.

3. The method according to claim 2, wherein the first trigger signaling comprises a target indication field, and the target indication field is used to indicate the first terminal device to transmit the assistance information to the at least one second terminal device.

4. The method according to claim 2, wherein the first trigger signaling comprises one of the following:

DCI signaling in a target downlink control information DCI format; and

DCI signaling scrambled by a target radio network temporary identifier RNTI.

5. The method according to claim 1, wherein before the transmitting assistance information to at least one second terminal device in a case that a preset trigger condition is met, the method further comprises:

in a case that second trigger signaling transmitted by the at least one second terminal device is received, determining that the preset trigger condition is met,

wherein the second trigger signaling is used to indicate the first terminal device to transmit the assistance information to the at least one second terminal device.

6. The method according to claim 5, wherein the transmitting assistance information to at least one second terminal device comprises:

transmitting the assistance information to the at least one second terminal device within a target transmission time period, wherein a manner of determining the target transmission time period comprises one of the following:

being indicated by the second trigger signaling;

being stipulated in a protocol;

being configured by a control node; and

being preconfigured.

7. The method according to claim 5, wherein the second trigger signaling is transmitted by the at least one second terminal device in a case that at least one of the following conditions is met:

at least one of a negative acknowledgement NACK message and a discontinuous transmission DTX is continuously detected;

before a transport block TB whose priority is higher than a priority threshold or whose quality of service QoS is higher than a QoS threshold is transmitted; and

a first measurement value between the at least one second terminal device and the first terminal device is less than a first measurement threshold, wherein the first measurement value comprises at least one of a reference signal received power RSRP measurement value and a distance measurement value.

8. The method according to claim 5, wherein the second trigger signaling is transmitted by the at least one second terminal device at a preset time interval, and the preset time interval is less than a time interval threshold.

9. The method according to claim 1, wherein the preset trigger condition comprises at least one of the following:

a second measurement value between the first terminal device and each of the at least one second terminal device is less than a second measurement threshold,

wherein the second measurement value comprises at least one of an RSRP measurement value and a distance measurement value;

the first terminal device has at least one radio resource control RRC connection based on a PC5 interface;

the number of occupied resources, the number of to-be-occupied resources, or the number of reserved resources is greater than a resource number threshold;

a conflict is detected in hybrid automatic repeat request HARQ feedback; and

a resource collision is detected in physical sidelink shared channel PSSCH transmission.

10. The method according to claim 1, wherein the transmitting assistance information to at least one second terminal device in a case that a preset trigger condition is met comprises:

in a case that the preset trigger condition is met, semi-persistently or aperiodically transmitting the assistance information to the at least one second terminal device.

11. The method according to claim 1, wherein the assistance information comprises at least one of the following: a resource set indication, a resource reselection indication, a demodulation reference signal DMRS pattern indication, a DMRS port number indication, a DMRS port index indication, a transmit power indication, a modulation and coding scheme MCS indication, a HARQ feedback activation indication, and a HARQ feedback type indication.

12. The method according to claim 11, wherein in a case that the assistance information comprises the resource set indication, the resource set indication comprises at least one of a time domain resource indication and a frequency domain resource indication, wherein

the time domain resource indication is used to indicate at least one of a period, an offset, a length, a granularity, and a resource indication mode of a time domain resource in a resource set, and the frequency domain resource indication is used to indicate at least one of an offset, a length, a granularity, and a resource indication mode of a frequency domain resource in a resource set.

13. The method according to claim 11, wherein in a case that the assistance information comprises the resource set indication and a resource set is divided into a plurality of resource subsets, the resource set indication comprises a resource subset indication, wherein

the resource subset indication is used to indicate at least one of a time domain granularity, a frequency domain granularity, a time domain starting position, a frequency domain starting position, a time domain length, a frequency domain length, a time domain period, a frequency domain period, and a resource subset indication mode that correspond to the resource subsets.

14. The method according to claim 11, wherein the transmitting assistance information to at least one second terminal device comprises:

transmitting the assistance information to the at least one second terminal device by using first signaling.

15. The method according to claim 14, wherein the first signaling is further used to carry at least one of the following:

a resource set indication mode in a case that the assistance information comprises the resource set indication;

a signaling identifier used to indicate that the first signaling is used to transmit the assistance information;

an identifier of the first terminal device; and

an identifier of the at least one second terminal device.

16. The method according to claim 11, wherein the method further comprises:

transmitting second signaling to the at least one second terminal device, wherein the second signaling is used to indicate an effective time period of the assistance information.

17. The method according to claim 16, wherein the effective time period of the assistance information comprises one of the following:

a first number of time units starting from a first moment, wherein the first moment is a moment when a target transmit terminal device receives the assistance information; and

a second number of time units starting from a second moment, wherein the second moment is a moment that has an interval of a third number of time units from the moment when the target transmit terminal device receives the assistance information.

18. An information transmission method, applied to a second terminal device, wherein the method comprises:

receiving assistance information, wherein the assistance information is transmitted by a first terminal device in a case that a periodic reporting condition or a preset trigger condition is met, and the assistance information is used to perform sidelink transmission.

19. The method according to claim 18, wherein before the receiving assistance information, the method further comprises:

transmitting trigger signaling to the first terminal device, wherein the trigger signaling is used to indicate the first terminal device to transmit the assistance information to the second terminal device.

~~20. The method according to claim 19, wherein the transmitting trigger signaling to the first terminal device comprises:~~

~~transmitting the trigger signaling to the first terminal device in a case that at least one of the following conditions is met:~~

~~at least one of a negative acknowledgement NACK message and a discontinuous transmission DTX is continuously detected;~~

~~before a transport block TB whose priority is higher than a priority threshold or whose quality of service QoS is higher than a QoS threshold is transmitted; and~~

~~a first measurement value between the second terminal device and the first terminal device is less than a first measurement threshold, wherein the first measurement value comprises at least one of a reference signal received power RSRP measurement value and a distance measurement value.~~

~~21. The method according to claim 19, wherein the transmitting trigger signaling to the first terminal device comprises:~~

~~transmitting the trigger signaling to the first terminal device at a preset time interval, wherein the preset time interval is less than a time interval threshold.~~

~~22. The method according to claim 18, wherein the assistance information comprises at least one of the following: a resource set indication, a resource reselection indication, a demodulation reference signal DMRS pattern indication, a DMRS port number indication, a DMRS port index indication, a transmit power indication, a modulation and coding scheme MCS indication, a HARQ feedback activation indication, and a HARQ feedback type indication.~~

~~23. The method according to claim 22, wherein in a case that the assistance information comprises the resource set indication, the resource set indication comprises at least one of a time domain resource indication and a frequency domain resource indication, wherein~~

~~the time domain resource indication is used to indicate at least one of a period, an offset, a length, a granularity, and a resource indication mode of a time domain resource in a resource set, and the frequency domain resource indication is used to indicate at least one of an offset, a length, a granularity, and a resource indication mode of a frequency domain resource in a resource set.~~

~~24. The method according to claim 22, wherein in a case that the assistance information comprises the resource set indication and a resource set is divided into a plurality of resource subsets, the resource set indication comprises a resource subset indication, wherein~~

~~the resource subset indication is used to indicate at least one of a time domain granularity, a frequency domain granularity, a time domain starting position, a frequency domain starting position, a time domain length, a frequency domain length, a time domain period, a frequency domain period, and a resource subset indication mode that correspond to the resource subsets.~~

~~25. The method according to claim 22, wherein the receiving assistance information comprises:~~

~~receiving first signaling, wherein the first signaling carries the assistance information.~~

~~26. The method according to claim 25, wherein the first signaling further carries at least one of the following:~~

~~a resource set indication mode in a case that the assistance information comprises the resource set indication;~~

~~a signaling identifier used to indicate that the first signaling is used to transmit the assistance information;~~

~~an identifier of the first terminal device; and~~

~~an identifier of the second terminal device.~~

~~27. The method according to claim 22, wherein the method further comprises:~~

~~receiving second signaling from the first terminal device, wherein the second signaling is used to indicate an effective time period of the assistance information.~~

~~28. The method according to claim 22, wherein a manner of determining the effective time period of the assistance information comprises: being preconfigured, being stipulated in a protocol, or being configured by a control node.~~

~~29. The method according to claim 27 or 28, wherein the effective time period of the assistance information comprises one of the following:~~

~~a first number of time units starting from a first moment, wherein the first moment is a moment when a target transmit terminal device receives the assistance information; and~~

~~a second number of time units starting from a second moment, wherein the second moment is a moment that has an interval of a third number of time units from the moment when the target transmit terminal device receives the assistance information.~~

~~30. A first terminal device, comprising:~~

~~a transmitting module, configured to transmit assistance information to at least one second terminal device in a case that a periodic reporting condition or a preset trigger condition is met, wherein the assistance information is used for the at least one second terminal device to perform sidelink transmission.~~

~~31. The first terminal device according to claim 30, wherein the first terminal device may further comprise:~~

~~a determining module, configured to: in a case that first trigger signaling transmitted by a control node is received, determine that the preset trigger condition is met, wherein the first trigger signaling is used to indicate the first terminal device to transmit the assistance information to the at least one second terminal device.~~

~~32. The first terminal device according to claim 31, wherein the first trigger signaling comprises a target indication field, and the target indication field is used to indicate the first terminal device to transmit the assistance information to the at least one second terminal device.~~

~~33. The first terminal device according to claim 31, wherein the first trigger signaling comprises one of the following:~~

~~DCI signaling in a target downlink control information DCI format; and~~

~~DCI signaling scrambled by using a target radio network temporary identifier RNTI.~~

~~34. The first terminal device according to claim 31, wherein the determining module may be further configured to: in a case that second trigger signaling transmitted by the at least one second terminal device is received, determine that the preset trigger condition is met, wherein the second trigger signaling is used to indicate the first terminal device to transmit the assistance information to the at least one second terminal device.~~

~~35. The first terminal device according to claim 34, wherein the transmitting module is specifically configured to transmit the assistance information to the at least one second terminal device within a target transmission time period, wherein a manner of determining the target transmission time period comprises one of the following:~~

~~being indicated by the second trigger signaling;~~

~~being stipulated in a protocol;~~

~~being configured by a control node; and~~

~~being preconfigured.~~

~~36. The first terminal device according to claim 34, wherein the second trigger signaling is transmitted by the at least one second terminal device in a case that at least one of the following conditions is met:~~

~~at least one of a negative acknowledgement NACK message and a discontinuous transmission DTX is continuously detected;~~

~~before a transport block TB whose priority is higher than a priority threshold or whose quality of service QoS is higher than a QoS threshold is transmitted; and~~

~~a first measurement value between the at least one second terminal device and the first terminal device is less than a first measurement threshold, wherein the first measurement value comprises at least one of a reference signal received power RSRP measurement value and a distance measurement value.~~

~~37. The first terminal device according to claim 34, wherein the second trigger signaling is transmitted by the at least one second terminal device at a preset time interval, and the preset time interval is less than a time interval threshold.~~

~~38. The first terminal device according to claim 30, wherein the preset trigger condition comprises at least one of the following:~~

~~a second measurement value between the first terminal device and each of the at least one second terminal device is less than a second measurement threshold, wherein the second measurement value comprises at least one of an RSRP measurement value and a distance measurement value;~~

~~the first terminal device has at least one radio resource control RRC connection based on a PC5 interface;~~

~~the number of occupied resources, the number of to-be-occupied resources, or the number of reserved resources is greater than a resource number threshold;~~

~~a conflict is detected in hybrid automatic repeat request HARQ feedback; and~~

~~a resource collision is detected in physical sidelink shared channel PSSCH transmission.~~

~~39. The first terminal device according to claim 30, wherein the transmitting module is specifically configured to: in a case that the preset trigger condition is met,~~

~~semi-persistently or aperiodically transmit the assistance information to the at least one second terminal device.~~

~~40. The first terminal device according to claim 30, wherein the assistance information comprises at least one of the following: a resource set indication, a resource reselection indication, a demodulation reference signal DMRS pattern indication, a DMRS port number indication, a DMRS port index indication, a transmit power indication, a modulation and coding scheme MCS indication, a HARQ feedback activation indication, and a HARQ feedback type indication.~~

~~41. The first terminal device according to claim 40, wherein in a case that the assistance information comprises the resource set indication, the resource set indication comprises at least one of a time domain resource indication and a frequency domain resource indication, wherein~~

~~the time domain resource indication is used to indicate at least one of a period, an offset, a length, a granularity, and a resource indication mode of a time domain resource in a resource set, and the frequency domain resource indication is used to indicate at least one of an offset, a length, a granularity, and a resource indication mode of a frequency domain resource in a resource set.~~

~~42. The first terminal device according to claim 40, wherein in a case that the assistance information comprises the resource set indication and a resource set is divided into a plurality of resource subsets, the resource set indication comprises a resource subset indication, wherein~~

~~the resource subset indication is used to indicate at least one of a time domain granularity, a frequency domain granularity, a time domain starting position, a frequency domain starting position, a time domain length, a frequency domain length, a time domain period, a frequency domain period, and a resource subset indication mode that correspond to the resource subsets.~~

~~43. The first terminal device according to claim 40, wherein the transmitting module is specifically configured to transmit the assistance information to the at least one second terminal device by using first signaling.~~

~~44. The first terminal device according to claim 43, wherein the first signaling is further used to carry at least one of the following:~~

~~a resource set indication mode in a case that the assistance information comprises the resource set indication;~~

~~a signaling identifier used to indicate that the first signaling is used to transmit the assistance information;~~

~~an identifier of the first terminal device; and~~

~~an identifier of the at least one second terminal device.~~

~~45. The first terminal device according to claim 30, further comprising:~~

~~a sending module, configured to transmit second signaling to the at least one second terminal device, wherein the second signaling is used to indicate an effective time period of the assistance information.~~

~~46. The first terminal device according to claim 45, wherein the effective time period of the assistance information comprises one of the following:~~

~~a first number of time units starting from a first moment, wherein the first moment is a moment when a target transmit terminal device receives the assistance information; and~~

~~a second number of time units starting from a second moment, wherein the second moment is a moment that has an interval of a third number of time units from the moment when the target transmit terminal device receives the assistance information.~~

~~47. A second terminal device, comprising:~~

~~a receiving module, configured to receive assistance information, wherein the assistance information is transmitted by a first terminal device in a case that a periodic reporting condition or a preset trigger condition is met, and the assistance information is used for sidelink transmission.~~

~~48. The second terminal device according to claim 47, wherein the second terminal device further comprises:~~

~~a sending module, configured to transmit trigger signaling to the first terminal device, wherein the trigger signaling is used to indicate the first terminal device to transmit the assistance information to the second terminal device.~~

~~49. The second terminal device according to claim 48, wherein the sending module is specifically configured to transmit the trigger signaling to the first terminal device in a case that at least one of the following conditions is met:~~

~~at least one of a negative acknowledgement NACK message and a discontinuous transmission DTX is continuously detected;~~

~~before a transport block TB whose priority is higher than a priority threshold or whose quality of service QoS is higher than a QoS threshold is transmitted; and~~

~~a first measurement value between the second terminal device and the first terminal device is less than a first measurement threshold, wherein the first measurement value comprises at least one of a reference signal received power RSRP measurement value and a distance measurement value.~~

~~50. The second terminal device according to claim 48, wherein the sending module is specifically configured to transmit the trigger signaling to the first terminal device at a preset time interval, wherein the preset time interval is less than a time interval threshold.~~

~~51. The second terminal device according to claim 47, wherein the assistance information comprises at least one of the following: a resource set indication, a resource reselection indication, a demodulation reference signal DMRS pattern indication, a DMRS port number indication, a DMRS port index indication, a transmit power indication, a modulation and coding scheme MCS indication, a HARQ feedback activation indication, and a HARQ feedback type indication.~~

~~52. The second terminal device according to claim 51, wherein in a case that the assistance information comprises the resource set indication, the resource set indication comprises at least one of a time domain resource indication and a frequency domain resource indication, wherein~~

~~the time domain resource indication is used to indicate at least one of a period, an offset, a length, a granularity, and a resource indication mode of a time domain~~

~~resource in a resource set, and the frequency domain resource indication is used to indicate at least one of an offset, a length, a granularity, and a resource indication mode of a frequency domain resource in a resource set.~~

~~53. The second terminal device according to claim 51, wherein in a case that the assistance information comprises the resource set indication and a resource set is divided into a plurality of resource subsets, the resource set indication comprises a resource subset indication, wherein~~

~~the resource subset indication is used to indicate at least one of a time domain granularity, a frequency domain granularity, a time domain starting position, a frequency domain starting position, a time domain length, a frequency domain length, a time domain period, a frequency domain period, and a resource subset indication mode that correspond to the resource subsets.~~

~~54. The second terminal device according to claim 51, wherein the receiving module may be specifically configured to receive first signaling, wherein the first signaling carries the assistance information.~~

~~55. The second terminal device according to claim 54, wherein the first signaling further carries at least one of the following:~~

~~a resource set indication mode in a case that the assistance information comprises the resource set indication;~~

~~a signaling identifier used to indicate that the first signaling is used to transmit the assistance information;~~

~~an identifier of the first terminal device; and~~

~~an identifier of the second terminal device.~~

~~56. The second terminal device according to claim 51, wherein the receiving module is further configured to receive second signaling from the first terminal device, wherein the second signaling is used to indicate an effective time period of the assistance information.~~

~~57. The second terminal device according to claim 51, wherein a manner of determining the effective time period of the assistance information comprises: being preconfigured, being stipulated in a protocol, or being configured by a control node.~~

~~58. The second terminal device according to claim 56 or 57, wherein the effective time period of the assistance information comprises one of the following:~~

~~a first number of time units starting from a first moment, wherein the first moment is a moment when a target transmit terminal device receives the assistance information; and~~

~~a second number of time units starting from a second moment, wherein the second moment is a moment that has an interval of a third number of time units from the moment when the target transmit terminal device receives the assistance information.~~

~~59~~20. A terminal device, comprising a memory, a processor, and a computer program stored in the memory and capable of running on the processor, wherein when the computer program is executed by the processor, the steps of the method according to any one of claims 1 to 17 are implemented; or when the computer program is executed by the processor, the steps of the method according to any one of claims 18 to ~~29~~ 19 are implemented.

~~60. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program, and when the computer program is executed by a processor, the steps of the method according to any one of claims 1 to 17 are implemented; or when the computer program is executed by the processor, the steps of the method according to any one of claims 18 to 29 are implemented.~~

~~61. A terminal device, wherein the terminal device is configured to perform the steps of the method according to any one of claims 1 to 17, or the steps of the method according to any one of claims 18 to 29.~~

~~62. A computer program product, wherein the computer program product is executed by at least one processor to implement the steps of the method according to any one of claims 1 to 17, or the steps of the method according to any one of claims 18 to 29.~~