

CLAIMS

What is claimed is:

1. A method for detecting link failure of a sidelink, performed by~~applied to~~ a terminal and comprising:

transmitting target information through a sidelink, wherein the target information comprises ~~a first reference signal or~~ a data packet; and

determining, if a transmission status of the target information meets a preset criterion, that no link failure occurs on the sidelink, and determining, if otherwise, that link failure occurs on the sidelink;

wherein before the step of determining, if the transmission status of the target information meets a preset criterion, that no link failure occurs on the sidelink, the method further comprises: detecting whether a transmission status of the data packet meets a second preset criterion within a time interval;

wherein the terminal is a transmit end, and the second preset criterion comprises at least one of the following:

that reception feedback information of the data packet being ACK is received or detected,

that a quantity of failed transmissions of the data packet is less than a third number, and

that a quantity of retransmissions of the data packet is less than a fourth number.

~~2. The method for detecting link failure of a sidelink according to claim 1, before the step of determining, if a transmission status of the target information meets a preset criterion, that no link failure occurs on the sidelink, further comprising:—~~

~~detecting whether a transmission status of the first reference signal meets a first preset criterion within a time interval; or~~

~~detecting whether a transmission status of the data packet meets a second preset criterion within the time interval.~~

~~3. The method for detecting link failure of a sidelink according to claim 2, wherein when the terminal is a receive end, the first preset criterion comprises at least one of the following:—~~

~~that the first reference signal is received, and~~

~~that a measurement result of the first reference signal exceeds a first preset threshold;~~

~~or;~~

~~wherein when the terminal is a receive end, that a transmission status of the first reference~~

signal does not meet a first preset criterion comprises:

that the first reference signal is not received, or

that a measurement result of one or more first reference signals is less than a second preset threshold.

4. The method for detecting link failure of a sidelink according to claim 2, wherein when the terminal is a transmit end, the first preset criterion comprises at least one of the following:

that reception feedback information of the first reference signal being ACK is received or detected,

that a quantity of failed transmissions of the first reference signal is less than a first number, and

that a quantity of retransmissions of the first reference signal is less than a second number;

or,

wherein when the terminal is a transmit end, that a transmission status of the first reference signal does not meet a first preset criterion comprises:

that no reception feedback information of one or more first reference signals is received or detected, or

that reception feedback information of one or more first reference signals being NACK is received or detected.

5. The method for detecting link failure of a sidelink according to any one of claims 1 to 4, wherein the first reference signal comprises at least one of the following: a primary synchronization signal PSS, a secondary synchronization signal SSS, a channel state information reference signal CSI-RS, a demodulation reference signal DMRS, a phase tracking reference signal PTRS, a tracking reference signal TRS, a sounding reference signal SRS, and a first dedicated reference signal, wherein the first dedicated reference signal is used for link failure detection.

6. The method for detecting link failure of a sidelink according to claim 2, wherein when the terminal is a receive end, the second preset criterion comprises at least one of the following:

that the data packet is received, and

that a transmission quality parameter of the data packet meets a preset requirement, wherein

the transmission quality parameter comprises at least one of delay, a packet loss rate, a

~~transmission rate, and a communication range;~~

~~or,~~

~~wherein when the terminal is a receive end, that a transmission status of the data packet does not meet a second preset criterion comprises:~~

~~that the data packet is not received, or~~

~~that a transmission quality parameter of the data packet does not meet a preset requirement,~~

~~wherein~~

~~the transmission quality parameter comprises at least one of delay, a packet loss rate, a transmission rate, and a communication range.~~

~~7. The method for detecting link failure of a sidelink according to claim 2, wherein when the terminal is a transmit end, the second preset criterion comprises at least one of the following:~~

~~that reception feedback information of the data packet being ACK is received or detected,~~

~~that a quantity of failed transmissions of the data packet is less than a third number, and~~

~~that a quantity of retransmissions of the data packet is less than a fourth number.~~

~~82. The method for detecting link failure of a sidelink according to claim 21, wherein when the terminal is a transmit end, that a transmission status of the data packet does not meet a second preset criterion comprises:~~

~~that no reception feedback information of one or more data packets is received or detected,~~
~~or~~

~~that reception feedback information of one or more data packets being NACK is received or detected.~~

~~93. The method for detecting link failure of a sidelink according to claim 21, wherein the time interval is a predefined or preconfigured time interval, or the time interval is a predefined or preconfigured first timer.~~

~~104. The method for detecting link failure of a sidelink according to claim 91, wherein when the terminal is a receive end, startup time of the first timer comprises at least one of the following:~~

~~predefined or preconfigured first time, and~~

~~time when the target information is received;~~

~~or,~~

wherein ~~when the terminal is a transmit end~~, startup time of the first timer comprises at least one of the following:

predefined or preconfigured second time, and
time after the target information is sent.

~~145.~~ The method for detecting link failure of a sidelink according to claim ~~91~~, wherein the time interval is a predefined or preconfigured first timer;

~~when the terminal is a receive end, a restart criterion of the first timer comprises at least one of the following:~~

~~that the transmission status of the target information meets the preset criterion, and
that a data packet other than the target information is received;
or,~~

wherein ~~when the terminal is a transmit end~~, a restart criterion of the first timer comprises at least one of the following:

that the transmission status of the target information meets the preset criterion, and
that a data packet other than the target information is sent.

~~126.~~ The method for detecting link failure of a sidelink according to claim 1, wherein ~~when the terminal is a transmit end~~, the step of transmitting target information through the sidelink comprises:

sending the target information through the sidelink according to a preset rule, wherein the preset rule comprises at least one of the following sending rules: sending in a preset time period, sending on a preset frequency, and sending on a preset beam.

~~137.~~ The method for detecting link failure of a sidelink according to claim ~~126~~, wherein the preset time period is a predefined or preconfigured time interval, or the preset time period is a predefined or preconfigured second timer.

~~148.~~ The method for detecting link failure of a sidelink according to claim ~~137~~, wherein startup time of the second timer comprises at least one of the following:

predefined or preconfigured third time, and
time after the target information is sent for the first time;
or,

wherein a restart criterion of the second timer comprises at least one of the following:
that the target information is sent, and

that a data packet other than the target information is sent, wherein transmission of the target information starts when the second timer expires.

~~15. The method for detecting link failure of a sidelink according to claim 1, wherein when the terminal is a receive end, after the step of determining that link failure occurs on the sidelink, the method further comprises:~~

~~receiving a second reference signal sent by a transmit end;~~

~~measuring the second reference signal based on a measurement configuration to obtain a measurement result; and~~

~~sending the measurement result to the transmit end or a network device, so that the transmit end or the network device updates, based on the measurement result, a carrier or a resource pool used by the sidelink.~~

~~16. The method for detecting link failure of a sidelink according to claim 15, wherein the measurement configuration comprises at least one of a measurement gap configuration, a measurement target configuration, a measurement report configuration, a measurement identifier configuration, and a measurement quantity configuration; wherein the measurement quantity configuration comprises at least one of reference signal received power RSRP, a reference signal received quality RSRQ, and a signal to noise plus interference ratio SINR of the second reference signal;~~

~~or,~~

~~wherein the second reference signal comprises at least one of the following: a primary synchronization signal PSS, a secondary synchronization signal SSS, a channel state information reference signal CSI-RS, a demodulation reference signal DMRS, a phase tracking reference signal PTRS, a tracking reference signal TRS, a sounding reference signal SRS, and a second dedicated reference signal, wherein the second dedicated reference signal is used for link update measurement.~~

~~179. A terminal, comprising:~~

~~a transmission module, configured to transmit target information through a sidelink, wherein the target information comprises a first reference signal or a data packet; and~~

~~a processing module, configured to determine, if a transmission status of the target information meets a preset criterion, that no link failure occurs on the sidelink, and determine, if otherwise, that link failure occurs on the sidelink;~~

wherein the terminal further comprises:

a second detection module, configured to detect whether a transmission status of the data packet meets a second preset criterion within a time interval;

wherein the terminal is a transmit end, and the second preset criterion comprises at least one of the following:

that reception feedback information of the data packet being ACK is received or detected,

that a quantity of failed transmissions of the data packet is less than a third number, and

that a quantity of retransmissions of the data packet is less than a fourth number.

~~18. The terminal according to claim 17, wherein the terminal further comprises:~~

~~a first detection module, configured to detect whether a transmission status of the first reference signal meets a first preset criterion within a time interval;~~

~~or~~

~~a second detection module, configured to detect whether a transmission status of the data packet meets a second preset criterion within the time interval.~~

~~19. The terminal according to claim 18, wherein when the terminal is a transmit end, the second preset criterion comprises at least one of the following:~~

~~that reception feedback information of the data packet is received or detected,~~

~~that a quantity of failed transmissions of the data packet is less than a third number, and~~

~~that a quantity of retransmissions of the data packet is less than a fourth number.~~

10. The terminal according to claim 9, wherein that a transmission status of the data packet does not meet a second preset criterion comprises:

that no reception feedback information of one or more data packets is received or detected,

or

that reception feedback information of one or more data packets being NACK is received or detected.

11. The terminal according to claim 9, wherein the time interval is a predefined or preconfigured time interval, or the time interval is a predefined or preconfigured first timer.

12. The terminal according to claim 9, wherein startup time of the first timer comprises at least one of the following:

predefined or preconfigured second time, and

time after the target information is sent.

13. The terminal according to claim 9, wherein the time interval is a predefined or preconfigured time interval, or the time interval is a predefined or preconfigured first timer;

wherein a restart criterion of the first timer comprises at least one of the following:

that the transmission status of the target information meets the preset criterion, and

that a data packet other than the target information is sent.

14. The terminal according to claim 9, wherein the transmission module comprises:

a sending sub-module, configured to send the target information through the sidelink according to a preset rule, wherein the preset rule comprises at least one of the following sending rules: sending in a preset time period, sending on a preset frequency, and sending on a preset beam.

15. The terminal according to claim 14, wherein the preset time period is a predefined or preconfigured time interval, or the preset time period is a predefined or preconfigured second timer.

16. The terminal according to claim 15, wherein startup time of the second timer comprises at least one of the following:

predefined or preconfigured third time, and

time after the target information is sent for the first time;

or,

wherein a restart criterion of the second timer comprises at least one of the following:

that the target information is sent; and

that a data packet other than the target information is sent, wherein

transmission of the target information starts when the second timer expires.

2017. A terminal, wherein the terminal comprises a processor, a memory, and a computer program stored in the memory and running on the processor, and the processor executes the computer program to perform steps of:

transmitting target information through a sidelink, wherein the target information comprises ~~a first reference signal or~~ a data packet; and

determining, if a transmission status of the target information meets a preset criterion, that no link failure occurs on the sidelink, and determining, if otherwise, that link failure occurs on the sidelink;

wherein before determining, if the transmission status of the target information meets a

preset criterion, that no link failure occurs on the sidelink, the processor executes the computer program to further perform steps of:

detecting whether a transmission status of the data packet meets a second preset criterion within a time interval;

wherein the terminal is a transmit end, and the second preset criterion comprises at least one of the following:

that reception feedback information of the data packet being ACK is received or detected,

that a quantity of failed transmissions of the data packet is less than a third number, and

that a quantity of retransmissions of the data packet is less than a fourth number.

18. The terminal according to claim 17, wherein that a transmission status of the data packet does not meet a second preset criterion comprises:

that no reception feedback information of one or more data packets is received or detected,

or

that reception feedback information of one or more data packets being NACK is received or detected.

19. The terminal according to claim 17, wherein the time interval is a predefined or preconfigured time interval, or the time interval is a predefined or preconfigured first timer.

20. The terminal according to claim 17, wherein startup time of the first timer comprises at least one of the following:

predefined or preconfigured second time, and

time after the target information is sent.