CLAIMS

1. A communication method, comprising:

receiving a wireless fidelity Wi-Fi data frame from a transmitter; and

sending a block acknowledgment frame to the transmitter, wherein the block acknowledgment frame comprises interference information of the Wi-Fi data frame.

2. The method according to claim 1, wherein the Wi-Fi data frame comprises a physical protocol data unit PPDU, data to be transmitted in the PPDU is encoded into N orthogonal frequency division multiplexing OFDM symbols, the interference information of the Wi-Fi data frame is a proportion of interfered OFDM symbols in the PPDU, and N is a positive integer; and

the method further comprises:

recording an error vector magnitude EVM of each of the N OFDM symbols through a physical PHY layer, to obtain N EVMs, wherein the N EVMs comprise a first EVM, and an absolute value of the first EVM is a maximum value of absolute values of the N EVMs;

determining a difference between the absolute value of the first EVM and the absolute value of each of the N EVMs through the PHY layer;

determining a first quantity of the differences greater than a first threshold through the PHY layer; and

using a ratio of the first quantity to N as the proportion of the interfered OFDM symbols in the PPDU through the PHY layer.

3. The method according to claim 1, wherein the Wi-Fi data frame comprises an aggregated medium access control protocol data unit AMPDU, the AMPDU comprises M MPDUs, the interference information of the Wi-Fi data frame is a quantity of interfered MPDUs in the AMPDU, and M is a positive integer; and

the method further comprises:

checking each of the M MPDUs through a medium access control MAC layer, to obtain a first MPDU with a check error;

determining, through the MAC layer, a second quantity of first MPDUs corresponding to an interfered OFDM symbol, wherein a difference between an absolute value of an EVM of the interfered OFDM symbol and an absolute value of a first EVM is less than a first threshold, the first EVM is a maximum value of absolute values of N EVMs, and the N EVMs comprise an EVM of each of N OFDM symbols obtained from PPDU encoding; and

using the second quantity as the quantity of interfered MPDUs in the AMPDU through the MAC layer.

4. The method according to claim 3, wherein M is less than or equal to 256.

5. The method according to claim 1, wherein the interference information of the Wi-Fi data frame is located in a reserved field or a user-defined field of the block acknowledgment frame.

6. A communication method, comprising:

sending a wireless fidelity Wi-Fi data frame to a receiver;

receiving a block acknowledgment frame from the receiver, wherein the block acknowledgment frame comprises interference information of the Wi-Fi data frame; and

determining a packet error rate of the Wi-Fi data frame based on a quantity of aggregated medium access control protocol data units AMPDUs, a quantity of erroneous MPDUs, and the interference information of the Wi-Fi data frame.

7. The method according to claim 6, wherein the Wi-Fi data frame comprises a physical protocol data unit PPDU, data to be transmitted in the PPDU is encoded into N orthogonal frequency division multiplexing OFDM symbols, the interference information of the Wi-Fi data frame is a proportion of interfered OFDM symbols in the PPDU, N is a positive integer, and the packet error rate PER of the Wi-Fi data frame is obtained through calculation according to the following formula:

$$PER = max\left\{\frac{error_mpdu_num}{aggr_mpdu_num} \times 100\% - ppdu_interf_ratio, 0\right\}$$

wherein $error_mpdu_num$ is the quantity of erroneous MPDUs, $aggr_mpdu_num$ is the quantity of AMPDUs, and $ppdu_interf_ratio$ is the proportion of the interfered OFDM symbols in the PPDU.

8. The method according to claim 6, wherein the Wi-Fi data frame comprises an AMPDU, the AMPDU comprises M MPDUs, the interference information of the Wi-Fi data frame is a quantity of interfered MPDUs in the AMPDU, M is a positive integer, and the packet error rate PER of the Wi-Fi data frame is obtained through calculation according to the following formula:

$$PER = \frac{error_mpdu_num - interf_mpdu_num}{aggr_mpdu_num} \times 100\%$$

wherein $error_mpdu_num$ is the quantity of erroneous MPDUs, $aggr_mpdu_num$ is the quantity of AMPDUs, and $interf_mpdu_num$ is the quantity of interfered MPDUs in the AMPDU.

9. A communication apparatus, comprising:

a receiving unit, configured to receive a wireless fidelity Wi-Fi data frame from a transmitter; and

a sending unit, configured to send a block acknowledgment frame to the transmitter, wherein the block acknowledgment frame comprises interference information of the Wi-Fi data frame.

10. The apparatus according to claim 9, wherein the Wi-Fi data frame comprises a physical

protocol data unit PPDU, data to be transmitted in the PPDU is encoded into N orthogonal frequency division multiplexing OFDM symbols, the interference information of the Wi-Fi data frame is a proportion of interfered OFDM symbols in the PPDU, and N is a positive integer; and

the apparatus further comprises a processing unit, configured to: record an error vector magnitude EVM of each of the N OFDM symbols through a physical PHY layer, to obtain N EVMs, wherein the N EVMs comprise a first EVM, and an absolute value of the first EVM is a maximum value of absolute values of the N EVMs; determine a difference between the absolute value of the first EVM and the absolute value of each of the N EVMs through the PHY layer; determine a first quantity of the differences greater than a first threshold through the PHY layer; and use a ratio of the first quantity to N as the proportion of the interfered OFDM symbols in the PPDU through the PHY layer.

11. The apparatus according to claim 9, wherein the Wi-Fi data frame comprises an aggregated medium access control protocol data unit AMPDU, the AMPDU comprises M MPDUs, the interference information of the Wi-Fi data frame is a quantity of interfered MPDUs in the AMPDU, and M is a positive integer; and

the apparatus further comprises a processing unit, configured to: check each of the M MPDUs through a medium access control MAC layer, to obtain a first MPDU with a check error; determine, through the MAC layer, a second quantity of first MPDUs corresponding to an interfered OFDM symbol, wherein a difference between an absolute value of an EVM of the interfered OFDM symbol and an absolute value of a first EVM is less than a first threshold, the first EVM is a maximum value of absolute values of N EVMs, and the N EVMs comprise an EVM of each of N OFDM symbols obtained from PPDU encoding; and use the second quantity as the quantity of interfered MPDUs in the AMPDU through the MAC layer.

12. The apparatus according to claim 11, wherein M is less than or equal to 256.

13. The apparatus according to claim 1, wherein the interference information of the Wi-Fi data frame is located in a reserved field or a user-defined field of the block acknowledgment frame.

14. A communication apparatus, comprising:

a sending unit, configured to send a wireless fidelity Wi-Fi data frame to a receiver;

a receiving unit, configured to receive a block acknowledgment frame from the receiver, wherein the block acknowledgment frame comprises interference information of the Wi-Fi data frame; and

a processing unit, configured to determine a packet error rate of the Wi-Fi data frame based on a quantity of aggregated medium access control protocol data units AMPDUs, a quantity of erroneous MPDUs, and the interference information of the Wi-Fi data frame.

15. The apparatus according to claim 14, wherein the Wi-Fi data frame comprises a physical

protocol data unit PPDU, data to be transmitted in the PPDU is encoded into N orthogonal frequency division multiplexing OFDM symbols, the interference information of the Wi-Fi data frame is a proportion of interfered OFDM symbols in the PPDU, N is a positive integer, and the packet error rate PER of the Wi-Fi data frame is obtained through calculation according to the following formula:

$$PER = max\left\{\frac{error_mpdu_num}{aggr_mpdu_num} \times 100\% - ppdu_interf_ratio, 0\right\}$$

wherein $error_mpdu_num$ is the quantity of erroneous MPDUs, $aggr_mpdu_num$ is the quantity of AMPDUs, and $ppdu_interf_ratio$ is the proportion of the interfered OFDM symbols in the PPDU.

16. The apparatus according to claim 14, wherein the Wi-Fi data frame comprises an AMPDU, the AMPDU comprises M MPDUs, the interference information of the Wi-Fi data frame is a quantity of interfered MPDUs in the AMPDU, M is a positive integer, and the packet error rate PER of the Wi-Fi data frame is obtained through calculation according to the following formula:

$$PER = \frac{error_mpdu_num - interf_mpdu_num}{aggr_mpdu_num} \times 100\%$$

wherein $error_mpdu_num$ is the quantity of erroneous MPDUs, $aggr_mpdu_num$ is the quantity of AMPDUs, and $interf_mpdu_num$ is the quantity of interfered MPDUs in the AMPDU.

17. A communication apparatus, comprising a processor and a storage medium, wherein the storage medium stores instructions, and when the instructions are run by the processor, the method according to any one of claims 1 to 5 or the method according to any one of claims 6 to 8 is implemented.

18. A computer-readable storage medium, wherein the computer-readable storage medium comprises instructions, and when the instructions are run by a processor, the method according to any one of claims 1 to 5 or the method according to any one of claims 6 to 8 is implemented.

19. A communication method, wherein the method comprises the method according to any one of claims 1 to 5, or the method comprises the method according to any one of claims 6 to 8.

20. A communication system, wherein the communication system comprises a transmitter and a receiver, the transmitter is configured to perform the method according to any one of claims 1 to 5, and the receiver is configured to perform the method according to any one of claims 6 to 8.