CLAIMS

What is claimed is:

1. An Ethernet frame transmission method, applied to a first device, comprising:

removing, if a received Ethernet frame is a valid Ethernet frame, a specified field from the Ethernet frame; and

transmitting the Ethernet frame with the specified field removed to a second device;

discarding the Ethernet frame if the received Ethernet frame is an invalid Ethernet frame;

wherein

if a length of the Ethernet frame is not an integer number of bytes, the Ethernet frame is an invalid Ethernet frame; or

if a value indicated by the length field of the Ethernet frame does not match a data field length of the Ethernet frame, the Ethernet frame is an invalid Ethernet frame; or

if a frame check code calculated by the first device by using a frame check code algorithm does not match a value indicated by the frame check sequence field in the Ethernet frame, the Ethernet frame is an invalid Ethernet frame.

2. The method according to claim 1, wherein the specified field comprises at least one of the following:

a preamble field, a start frame delimiter field, a frame check sequence field, a length field, a padding field, and an extension field.

3. The method according to claim 2, wherein the removing a specified field from an Ethernet frame comprises at least one of the following:

removing the frame check sequence field if it is determined, based on a first Ethernet frame size and a second Ethernet frame size, that the Ethernet frame comprises the frame check sequence field or if it is determined, based on a format of the Ethernet frame, that the Ethernet frame comprises the frame check sequence field, wherein the first Ethernet frame size is an actually received Ethernet frame size of the Ethernet frame, and the second Ethernet frame size is an Ethernet frame size determined by parsing the format of the Ethernet frame;

removing the padding field if it is determined, based on an actual data field length of the Ethernet frame and a protocol-prescribed minimum data field length corresponding to a format of the Ethernet frame, that the Ethernet frame comprises the padding field or if it is determined, based on a type field in the Ethernet frame, that the Ethernet frame comprises the padding field, wherein the actual data field length is a length indicated by the length field; and

removing the extension field if it is determined, based on an Ethernet slot time and a minimum frame size supported by a format of the Ethernet frame, that the Ethernet frame comprises the extension field.

4. The method according to claim 3, further comprising at least one of the following:

transmitting a first indication to the second device in a case that the frame check sequence field is removed, wherein the first indication is used to indicate that the frame check sequence field in the Ethernet frame is removed; and

transmitting a second indication to the second device in a case that the extension field is removed, wherein the second indication is used to indicate that the extension field in the Ethernet frame is removed.

5. The method according to claim 4, wherein a length of the padding field is a difference between the minimum data field length and the actual data field length; and/or

a length of the extension field is a difference between the slot time and the Ethernet frame size determined by parsing the format of the Ethernet frame.

6. The method according to any one of claims 1 to 5, wherein the transmitting the Ethernet frame with the specified field removed to a second device comprises:

transmitting the Ethernet frame with the specified field removed to the second device through a radio access network (RAN).

7. An Ethernet frame transmission method, applied to a second device, comprising:

receiving, from a first device, an Ethernet frame obtained by the first device after removing a specified field from a valid Ethernet frame; and

adding the specified field to the Ethernet frame;

wherein

if a length of the Ethernet frame is not an integer number of bytes, the Ethernet frame is an invalid Ethernet frame; or

if a value indicated by the length field of the Ethernet frame does not match a data field length of the Ethernet frame, the Ethernet frame is an invalid Ethernet frame; or

if a frame check code calculated by the first device by using a frame check code algorithm does not match a value indicated by the frame check sequence field in the Ethernet frame, the Ethernet frame is an invalid Ethernet frame.

8. The method according to claim 7, wherein the specified field comprises at least one of the following:

a preamble field, a start frame delimiter field, a frame check sequence field, a length field, a padding field, and an extension field.

9. The method according to claim 8, further comprising at least one of the following:

receiving a first indication from the first device in a case that the frame check sequence field in the Ethernet frame is removed, wherein the first indication is used to indicate that the frame check sequence field in the Ethernet frame is removed; and

receiving a second indication from the first device in a case that the extension field in the Ethernet frame is removed, wherein the second indication is used to indicate that the extension field in the Ethernet frame is removed.

10. The method according to claim 8, wherein a value of the length field corresponds to a data field length of the Ethernet frame.

11. The method according to claim 9, wherein the adding the specified field to the Ethernet frame comprises at least one of the following:

adding the frame check sequence field to the Ethernet frame if the first indication is received, wherein the frame check sequence field is calculated by using a frame check code algorithm; and

adding the extension field to the Ethernet frame if the second indication is received, wherein a length of the extension field is a difference between an Ethernet slot time and an Ethernet frame size determined by parsing a format of the Ethernet frame.

12. The method according to claim 8, wherein

adding the padding field to the Ethernet frame if an actual data field length of the Ethernet frame is less than a protocol-prescribed minimum data field length corresponding to a format of the Ethernet frame, wherein a length of the padding field is a difference between the minimum data field length and the actual data field length.

13. The method according to any one of claims 7 to 12, wherein the receiving, from a first device, an Ethernet frame with a specified field removed comprises:

receiving, from the first device through a RAN, the Ethernet frame with the specified field removed.

14. A communications device, comprising a memory, a processor, and a program stored in the memory and capable of running on the processor, wherein when the program is executed by the processor, following steps are implemented：

removing, if a received Ethernet frame is a valid Ethernet frame, a specified field from the Ethernet frame; and

transmitting the Ethernet frame with the specified field removed to a second device;

discarding the Ethernet frame if the received Ethernet frame is an invalid Ethernet frame;

wherein

if a length of the Ethernet frame is not an integer number of bytes, the Ethernet frame is an invalid Ethernet frame; or

if a value indicated by the length field of the Ethernet frame does not match a data field length of the Ethernet frame, the Ethernet frame is an invalid Ethernet frame; or

if a frame check code calculated by the first device by using a frame check code algorithm does not match a value indicated by the frame check sequence field in the Ethernet frame, the Ethernet frame is an invalid Ethernet frame.

15. The communications device according to claim 14, the specified field comprises at least one of the following:

a preamble field, a start frame delimiter field, a frame check sequence field, a length field, a padding field, and an extension field.

16. The communications device according to claim 14, the transmitting the Ethernet frame with the specified field removed to a second device comprises:

transmitting the Ethernet frame with the specified field removed to the second device through a radio access network (RAN).

17. A communications device, comprising a memory, a processor, and a program stored in the memory and capable of running on the processor, wherein when the program is executed by the processor, the steps of the Ethernet frame transmission method according to any one of claims 7 to 13 are implemented.