

CLAIMS

1. A method for transmitting data in a Vehicle-to-Everything (V2X) system, comprising:

5 establishing, by a terminal device, a radio resource connection with network equipment covering a serving cell, the network equipment being deployed by a first operator, and a wireless communication network to which the serving cell belongs being deployed by the first operator and a second operator;

10 receiving, by the terminal device, information of the second operator transmitted by the network equipment, the information of the second operator comprising at least one of identification information or frequency resource information; and

15 receiving, by the terminal device, data transmitted by the first operator, and/or, receiving, by the terminal device, data transmitted by the second operator according to the information of the second operator.

2. The method according to claim 1, wherein establishing, by the terminal device, the radio resource connection with the network equipment covering the serving cell comprises:

20 transmitting, by the terminal device, at least one of the following information to the network equipment: identity information of the terminal device, connection establishment cause information or terminal type information,

25 wherein the identity information of the terminal device is configured for core network equipment to authenticate the terminal device, the connection establishment cause information is configured to indicate a cause for establishment of the radio resource connection, and the terminal type information is configured to identify a type of the terminal device.

3. The method according to claim 2, wherein transmitting, by the terminal device, at least one of the following information to the network equipment: the identity information of the terminal device, the connection establishment cause information or the terminal type information comprises:

transmitting, by the terminal device, a connection establishment request

message to the network equipment, the connection establishment request message comprising at least one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information; or,

5 transmitting, by the terminal device, a connection establishment completion message to the network equipment, the connection establishment completion message comprising at least one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information.

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4. A method for transmitting data in a Vehicle-to-Everything (V2X) system, comprising:

 establishing, by network equipment, a radio resource connection with a terminal device, the network equipment being network equipment covering a serving
15 cell for the terminal device and the network equipment being deployed by a first operator, and a wireless communication network to which the serving cell belongs being deployed by the first operator and a second operator;

 transmitting, by the network equipment, identity information of the terminal device to core network equipment for the core network equipment to authenticate and
20 verify the terminal device according to the identity information of the terminal device; and

 transmitting, by the network equipment, information of the second operator to the terminal device when receiving information indicating successful authentication and verification from the core network equipment, the information of the second
25 operator comprising at least one of identification information or frequency resource information.

5. The method according to claim 4, wherein establishing, by the network equipment, the radio resource connection with the terminal device comprises:

30 receiving, by the network equipment, at least one of the following information transmitted by the terminal device: identity information of the terminal device, connection establishment cause information or terminal type information, wherein the connection establishment cause information is configured to indicate a cause for

establishment of the radio resource connection, and the terminal type information is configured to identify a type of the terminal device.

6. The method according to claim 5, wherein transmitting, by the network equipment, the identity information of the terminal device to the core network equipment when the network equipment receives the identity information of the terminal device and the terminal type information from the terminal device comprises:

forwarding, by the network equipment, the received identity information of the terminal device and terminal type information to the core network equipment.

7. The method according to claim 4, further comprising:

determining, by the network equipment, the type of the terminal device according to a type of a frequency resource occupied when the network equipment establishes the radio resource connection with the terminal device; and

transmitting, by the network equipment, the identification information identifying the type of the terminal device to the core network equipment.

8. The method according to claim 5, wherein receiving, by the network equipment, at least one of the following information transmitted by the terminal device: the identity information of the terminal device, the connection establishment cause information or the terminal type information comprises:

receiving, by the network equipment, a connection establishment request message transmitted by the terminal device, the connection establishment request message comprising at least one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information; or,

receiving, by the network equipment, a connection establishment completion message transmitted by the terminal device, the connection establishment completion message comprising at least one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information.

9. A method for transmitting data in a Vehicle-to-Everything (V2X) system, comprising:

receiving, by core network equipment, identity information of a terminal device from network equipment, the network equipment being network equipment covering a serving cell for the terminal device and the network equipment being deployed by a first operator, and a wireless communication network to which the serving cell belongs being deployed by the first operator and a second operator;

authenticating and verifying, by the core network equipment, the terminal device according to the identity information of the terminal device; and

when the terminal device passes authentication and verification, transmitting, by the core network equipment, information indicating successful authentication and verification to the network equipment for the network equipment to transmit information of the second operator to the terminal device when receiving the information indicating the successful authentication and verification, the information of the second operator comprising at least one of identification information or frequency resource information.

10. The method according to claim 9, further comprising:

transmitting, by the core network equipment, the information of the second operator to the network equipment.

11. A terminal device, comprising:

a communication establishment unit, configured to establish a radio resource connection with network equipment covering a found serving cell, the network equipment being deployed by a first operator, and a wireless communication network to which the serving cell belongs being deployed by the first operator and a second operator; and

a transceiver unit, configured to receive information of the second operator transmitted by the network equipment, the information of the second operator comprising at least one of identification information or frequency resource information,

the transceiver unit being further configured to receive data transmitted by the first operator, and/or, receiving, by the terminal device, data transmitted by the second

operator according to the information of the second operator.

12. The terminal device according to claim 11, wherein the transceiver unit is specifically configured to:

5 transmit at least one of the following information to the network equipment: identity information of the terminal device, connection establishment cause information or terminal type information,

 wherein the identity information of the terminal device is configured for core network equipment to authenticate the terminal device, the connection establishment
10 cause information is configured to indicate a cause for establishment of the radio resource connection, and the terminal type information is configured to identify a type of the terminal device.

13. The terminal device according to claim 12, wherein the transceiver unit is
15 specifically configured to:

 transmit a connection establishment request message to the network equipment, the connection establishment request message comprising at least one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information; or,

20 transmit a connection establishment completion message to the network equipment, the connection establishment completion message comprising at least one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information.

25 14. Network equipment, comprising:

 a communication establishment unit, configured to establish a radio resource connection with a terminal device, the network equipment being a network equipment covering a serving cell for the terminal device and the network equipment being
30 deployed by a first operator, and a wireless communication network to which the serving cell belongs being deployed by the first operator and a second operator; and

 a transceiver unit, configured to transmit identity information of the terminal device to core network equipment for the core network equipment to authenticate and verify the terminal device according to the identity information of the terminal device,

the transceiver unit being further configured to transmit information of the second operator to the terminal device when receiving information indicating successful authentication and verification from the core network equipment, the information of the second operator comprising at least one of identification
5 information or frequency resource information.

15. The network equipment according to claim 14, wherein the transceiver unit is further configured to:

10 receive at least one of the following information transmitted by the terminal device: identity information of the terminal device, connection establishment cause information or terminal type information, wherein the connection establishment cause information is configured to indicate a cause for establishment of the radio resource connection, and the terminal type information is configured to identify a type of the terminal device.

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16. The network equipment according to claim 15, wherein, when the transceiver unit receives the identity information of the terminal device and the terminal type information from the terminal device, the transceiver unit is specifically configured to:

20 forward the received identity information of the terminal device and terminal type information to the core network equipment.

17. The network equipment according to claim 14, wherein the communication establishment unit is further configured to: determine the type of the terminal device according to a type of a frequency resource occupied when the radio resource
25 connection is established with the terminal device,

wherein the transceiver unit is further configured to:

transmit the identification information identifying the type of the terminal device to the core network equipment.

30 18. The network equipment according to claim 15, wherein the transceiver unit is specifically configured to:

receive a connection establishment request message transmitted by the terminal device, the connection establishment request message comprising at least one

of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information; or,

receive a connection establishment completion message transmitted by the terminal device, the connection establishment completion message comprising at least
5 one of the following information: the identity information of the terminal device, the connection establishment cause information or the terminal type information.

19. Core network equipment, comprising:

a transceiver unit, configured to receive identity information of a terminal
10 device from network equipment, the network equipment being network equipment covering a serving cell for the terminal device and the network equipment being deployed by a first operator, and a wireless communication network to which the serving cell belongs being deployed by the first operator and a second operator; and

an authentication unit, configured to authenticate and verify the terminal
15 device according to the identity information of the terminal device,

the transceiver unit being further configured to, when the terminal device passes authentication and verification of the authentication unit, transmit information indicating successful authentication and verification to the network equipment for the network equipment to transmit information of the second operator to the terminal
20 device when receiving the information indicating the successful authentication and verification, the information of the second operator comprising at least one of identification information or frequency resource information.

20. The core network equipment according to claim 19, wherein the transceiver unit
25 is further configured to:

transmit the information of the second operator to the network equipment.