

CLAIMS

5 1. A method for resource allocation, comprising:

transmitting, by a first terminal device, a request message to a network device,
wherein the request message comprising at least one of: capability
information, aggregated transmission indication information, mixed carrier request
information and shared resource pool information;

10 the capability information is used for indicating that the first terminal
device supports use of multiple carriers,

the aggregated transmission indication information is used for the first
terminal device to request for use of the multiple carriers,

15 the mixed carrier request information is used for requesting the network
device to allocate the multiple carriers to the first terminal device,

the shared resource pool information is used for indicating a shared
resource pool corresponding to a dedicated carrier of the first terminal device,

20 the multiple carriers have at least two types and the multiple carriers
comprise a mixed carrier and the dedicated carrier, the mixed carrier being configured
for an Uplink (UL), a Downlink (DL) and a Sidelink (SL), the dedicated carrier being
configured for an SL only, and the SL representing data transmission between
different terminal devices;

25 receiving, by the first terminal device, resource configuration information
transmitted by the network device according to the request message, wherein the
resource configuration information is used for indicating a first transmission resource
allocated to the first terminal device by the network device and the first transmission
resource comprises a resource on the mixed carrier;

determining, by the first terminal device, a second transmission resource based
on the first transmission resource; and

30 transmitting, by the first terminal device, data to a second terminal device
through the second transmission resource.

2. The method of claim 1, wherein the request message comprises the shared resource
pool information and a first valid time, and the first valid time is for indicating a valid

time of the shared resource pool.

3. The method of claim 1 or 2, wherein the resource configuration information comprises a second valid time, and the second valid time is for indicating a valid time of the first transmission resource.

4. The method of any one of claims 1-3, wherein the shared resource pool information comprises time-domain information of the shared resource pool.

5. The method of any one of claims 1-4, wherein the first transmission resource does not overlap with a resource in the shared resource pool in a time domain.

6. The method of any one of claims 1-5, wherein, when transmission power of the first terminal device is larger than or equal to preset power, multiple carriers in the second transmission resource overlap in a time domain, and/or

when transmission power of the first terminal device is lower than preset power, multiple carriers in the second transmission resource do not overlap in a time domain.

7. The method of any one of claims 1-6, wherein determining, by the first terminal device, the second transmission resource based on the first transmission resource comprises:

determining, by the first terminal device, the second transmission resource from the first transmission resource;

or,

determining, by the first terminal device, the second transmission resource based on the first transmission resource and according to a preset rule, wherein the preset rule comprises at least one of: a Channel Busy Ratio (CBR) result, priority of a service between the first terminal device and the second terminal device, and a capability of the first terminal device in simultaneous transmission of the multiple carriers.

8. The method of any one of claims 1-7, further comprising:

receiving, by the first terminal device, data transmitted by a third terminal device using a third transmission resource, the third transmission resource comprising the mixed carrier.

5 9. A method for resource allocation, comprising:

receiving, by a network device, a request message from a first terminal device,
wherein the request message comprises at least one of: capability
information, aggregated transmission indication information, mixed carrier request
information and shared resource pool information,

10 the capability information is used for indicating that the first terminal
device supports use of multiple carriers,

the aggregated transmission indication information is used for the first
terminal device to request for use of the multiple carriers,

15 the mixed carrier request information is used for requesting the network
device to allocate the multiple carriers to the first terminal device,

the shared resource pool information is used for indicating a shared
resource pool corresponding to a dedicated carrier of the first terminal device,

20 the multiple carriers have at least two types and the multiple carriers
comprise a mixed carrier and the dedicated carrier, the mixed carrier being configured
for an Uplink (UL), a Downlink (DL) and a Sidelink (SL), the dedicated carrier being
configured for the SL only, and the SL representing data transmission between
different terminal devices;

25 allocating, by the network device, a first transmission resource to the first
terminal device according to the request message, the first transmission resource
comprising a resource on the mixed carrier; and

transmitting, by the network device, resource configuration information to the
first terminal device,

wherein the resource configuration information is used for indicating the
first transmission resource,

30 the first transmission resource is configured for the first terminal device
to determine a second transmission resource, and

the second transmission resource is configured for the first terminal
device to transmit data to a second terminal device.

10. A terminal device, comprising:

a transmitting unit, configured to transmit a request message to a network device,

5 wherein the request message comprises at least one of: capability information, aggregated transmission indication information, mixed carrier request information and shared resource pool information,

the capability information is used for indicating that the terminal device supports use of multiple carriers,

10 the aggregated transmission indication information is used for the terminal device to request for use of the multiple carriers,

the mixed carrier request information is used for requesting the network device to allocate the multiple carriers to the terminal device,

the shared resource pool information is used for indicating a shared
15 resource pool corresponding to a dedicated carrier of the terminal device,

the multiple carriers have at least two types and the multiple carriers comprise a mixed carrier and the dedicated carrier, the mixed carrier being configured for an Uplink (UL), a Downlink (DL) and a Sidelink (SL), the dedicated carrier being configured for the SL only, and the SL representing data transmission between
20 different terminal devices;

a receiving unit, configured to receive resource configuration information transmitted by the network device according to the request message, wherein the resource configuration information is used for indicating a first transmission resource allocated to the terminal device by the network device, and the first transmission
25 resource comprises a resource on the mixed carrier;

a determining unit, configured to determine a second transmission resource based on the first transmission resource; and

the transmitting unit is further configured to transmit data to a second terminal device through the second transmission resource.

30 11. The terminal device of claim 10, wherein the request message comprises the shared resource pool information and a first valid time, the first valid time being for indicating a valid time of the shared resource pool.

12. The terminal device of claim 10 or 11, wherein the resource configuration information comprises a second valid time, the second valid time being for indicating a valid time of the first transmission resource.

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13. The terminal device of any one of claims 10-12, wherein the shared resource pool information comprises time-domain information of the shared resource pool.

14. A terminal device, comprising a processor and a transceiver capable of being controlled by the processor for information transmission, wherein the processor is configured to implement the operations of the method of any one of claims 1-8.

15. A network device, comprising:
a receiving unit, configured to receive a request message from a first terminal device,

wherein the request message comprises at least one of: capability information, aggregated transmission indication information, mixed carrier request information and shared resource pool information,

the capability information is used for indicating that the first terminal device supports use of multiple carriers,

the aggregated transmission indication information is used for the first terminal device to request for use of the multiple carriers,

the mixed carrier request information is used for requesting the network device to allocate the multiple carriers to the first terminal device,

the shared resource pool information is used for indicating a shared resource pool corresponding to a dedicated carrier of the first terminal device,

the multiple carriers have at least two types and the multiple carriers comprise a mixed carrier and the dedicated carrier, the mixed carrier being configured for an Uplink (UL), a Downlink (DL) and a Sidelink (SL), the dedicated carrier being configured for the SL only, and the SL representing data transmission between different terminal devices;

a processing unit, configured to allocate a first transmission resource to the first terminal device according to the request message, wherein the first transmission

resource comprises a resource on the mixed carrier; and

a transmitting unit, configured to transmit resource configuration information to the first terminal device,

5 wherein the resource configuration information is used for indicating the first transmission resource,

the first transmission resource is configured for the first terminal device to determine a second transmission resource, and

the second transmission resource is configured for the first terminal device to transmit data to a second terminal device.

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