

WHAT IS CLAIMED IS:

1. A method for allocating communication resources, performed by for an access point, comprising:

generating a trigger frame comprising a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits, wherein the plurality of frequency bands identified by the plurality of frequency band information bits and the communication resource information corresponding to each of the plurality of frequency bands are configured to transmit uplink data for at least one station; and

transmitting the trigger frame to the at least one station;

wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit, and the uplink bandwidth identified by the uplink bandwidth information bit comprises 320 MHz.

2. The method as claimed in claim 1, wherein

when each of the plurality of frequency band information bits is a first value, it indicates that the frequency band identified by the corresponding frequency band information bit is 2.4 GHz;

when each of the plurality of frequency band information bits is a second value, it indicates that the frequency band identified by the corresponding frequency band information bit is 5.8 GHz; and

when each of the plurality of frequency band information bits is a third value, it indicates that the frequency band identified by the corresponding frequency band information bit is 6-7.125 GHz.

~~3. The method as claimed in claim 1 or 2, wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit.~~

~~43.~~ The method as claimed in claim ~~13~~, wherein

when the uplink bandwidth information bit is a first value, it indicates that the uplink

bandwidth identified by the uplink bandwidth information bit is 20 MHz;

when the uplink bandwidth information bit is a second value, it indicates that the uplink bandwidth identified by the uplink bandwidth information bit is 40 MHz;

when the uplink bandwidth information bit is a third value, it indicates that the uplink bandwidth identified by the uplink bandwidth information bit is 80 MHz;

when the uplink bandwidth information bit is a fourth value, it indicates that the uplink bandwidth identified by the uplink bandwidth information bit is 160 MHz; and

when the uplink bandwidth information bit is a fifth value, it indicates that the uplink bandwidth identified by the uplink bandwidth information bit is 320 MHz.

54. The method as claimed in ~~any one of claims 1 to 4~~claim 1, further comprising:
receiving a data transmission request from ~~the at least one~~each station before generating the trigger frame.

65. The method as claimed in ~~any one of claims 1 to 5~~claim 1, wherein the trigger frame comprises a plurality of common information fields and at least one user information field; a number of the plurality of common information fields is the same as a number of the plurality of frequency bands; each of the plurality of common information fields is corresponding to each of the at least one user information field respectively; the trigger frame combines at least one information bit of each of the plurality of common information fields and/or at least one information bit of each of the at least one user information field as one of the plurality of frequency band information bits; and each of the plurality of frequency band information bits is configured to identify a frequency band of a station corresponding to each of the at least one user information field.

76. A method for transmitting data, ~~performed by~~for a station, comprising:
receiving a trigger frame from an access point, wherein the trigger frame comprises a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits;
obtaining, for a current station, the plurality of frequency bands identified by the plurality of frequency band information bits and a communication resource corresponding to each of the plurality of frequency bands, from the trigger frame; and

transmitting data to the access point by using the corresponding communication resource in each of the plurality of frequency bands;

wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit, and the uplink bandwidth identified by the uplink bandwidth information bit comprises 320 MHz.

87. The method as claimed in claim 76, wherein obtaining, for the current station, the plurality of frequency bands identified by the plurality of frequency band information bits and the communication resource corresponding to each of the plurality of frequency bands, from the trigger frame, comprises:

obtaining the plurality of frequency bands and an uplink bandwidth corresponding to each of the plurality of frequency bands, from the trigger frame; and

obtaining the communication resource corresponding to each of the plurality of frequency bands based on the uplink bandwidth corresponding to each of the plurality of frequency bands.

98. The method as claimed in claim 7 or 86, further comprising:

transmitting a data transmission request to the AP before receiving the trigger frame from the AP.

~~10. A trigger frame comprising a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits, wherein the plurality of frequency bands identified by the plurality of frequency band information bits and the communication resource information corresponding to each of the plurality of frequency bands are configured to transmit uplink data for at least one station.~~

~~11. The trigger frame as claimed in claim 10, further comprising an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit.~~

~~12. The trigger frame as claimed in claim 10 or 11, comprising a plurality of common information fields and at least one user information field; a number of the plurality of common~~

~~information fields is the same as a number of the plurality of frequency bands; each of the plurality of common information fields is corresponding to each of the at least one user information field respectively; the trigger frame combines at least one information bit of each of the plurality of common information fields and/or at least one information bit of each of the at least one user information field as one of the plurality of frequency band information bits; and each of the plurality of frequency band information bits is configured to identify a frequency band of a station corresponding to each of the at least one user information field.~~

139. An apparatus for allocating communication resources, performed by ~~for~~ an access point, comprising:

a generating module, configured to generate a trigger frame comprising a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits, wherein the plurality of frequency bands identified by the plurality of frequency band information bits and the communication resource information corresponding to each of the plurality of frequency bands are configured to transmit uplink data for at least one station; and

a transmitting module, configured to transmit the trigger frame generated by the generating module to the at least one station;

wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit, and the uplink bandwidth identified by the uplink bandwidth information bit comprises 320 MHz.

10. The apparatus as claimed in claim 9, wherein

when each of the plurality of frequency band information bits is a first value, it indicates that the frequency band identified by the corresponding frequency band information bit is 2.4 GHz;

when each of the plurality of frequency band information bits is a second value, it indicates that the frequency band identified by the corresponding frequency band information bit is 5.8 GHz; and

when each of the plurality of frequency band information bits is a third value, it indicates that the frequency band identified by the corresponding frequency band information bit is 6-7.125 GHz.

11. The apparatus as claimed in claim 9, wherein
when the uplink bandwidth information bit is a first value, it indicates that the uplink
bandwidth identified by the uplink bandwidth information bit is 20 MHz;
when the uplink bandwidth information bit is a second value, it indicates that the uplink
bandwidth identified by the uplink bandwidth information bit is 40 MHz;
when the uplink bandwidth information bit is a third value, it indicates that the uplink
bandwidth identified by the uplink bandwidth information bit is 80 MHz;
when the uplink bandwidth information bit is a fourth value, it indicates that the uplink
bandwidth identified by the uplink bandwidth information bit is 160 MHz; and
when the uplink bandwidth information bit is a fifth value, it indicates that the uplink
bandwidth identified by the uplink bandwidth information bit is 320 MHz.

~~14. The apparatus as claimed in claim 13, wherein the trigger frame further comprises an~~
~~uplink bandwidth information bit, and the communication resource information is related to an~~
~~uplink bandwidth identified by the uplink bandwidth information bit.~~

~~15~~12. The apparatus as claimed in claim 13 or 14~~9~~, further comprising:
a receiving module, configured to receive a data transmission request from ~~the at least one~~
each station before the generating module generates the trigger frame.

13. The apparatus as claimed in claim 9, wherein the trigger frame comprises a plurality
of common information fields and at least one user information field; a number of the plurality
of common information fields is the same as a number of the plurality of frequency bands; each
of the plurality of common information fields is corresponding to each of the at least one user
information field respectively; the trigger frame combines at least one information bit of each
of the plurality of common information fields and/or at least one information bit of each of the
at least one user information field as one of the plurality of frequency band information bits;
and each of the plurality of frequency band information bits is configured to identify a
frequency band of a station corresponding to each of the at least one user information field.

~~14~~14. An apparatus for transmitting data, ~~performed by~~ for a station, comprising:

a receiving module, configured to receive a trigger frame from an access point, wherein the trigger frame comprises a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits;

an obtaining module, configured to obtain, for a current station, the plurality of frequency bands identified by the plurality of frequency band information bits and a communication resource corresponding to each of the plurality of frequency bands, from the trigger frame received by the receiving module; and

a transmitting module, configured to transmit data to the access point by using the corresponding communication resource in each of the plurality of frequency bands and obtained by the obtaining module;

wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit, and the uplink bandwidth identified by the uplink bandwidth information bit comprises 320 MHz.

15. The apparatus as claimed in claim 14, wherein the obtaining module comprises:

a first obtaining sub-module, configured to obtain the plurality of frequency bands and an uplink bandwidth corresponding to each of the plurality of frequency bands, from the trigger frame; and

a second obtaining sub-module, configured to obtain the communication resource corresponding to each of the plurality of frequency bands based on the uplink bandwidth corresponding to each of the plurality of frequency bands and obtained by the first obtaining sub-module.

16. The apparatus as claimed in claim 14, further comprising:

a sending module, configured to transmit a data transmission request to the access point before the receiving module receives the trigger frame from the access point.

17. An access point, comprising:

a processor;

a memory for storing processor executable instructions; wherein,

the processor is configured to: ~~perform the method for allocating communication resources according to any one of claims 1 to 6.~~

generate a trigger frame comprising a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits, wherein the plurality of frequency bands identified by the plurality of frequency band information bits and the communication resource information corresponding to each of the plurality of frequency bands are configured to transmit uplink data for at least one station; and

transmit the trigger frame to the at least one station;

wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit, and the uplink bandwidth identified by the uplink bandwidth information bit comprises 320 MHz.

18. A base station, comprising:

a processor;

a memory for storing processor executable instructions; wherein,

the processor is configured to: ~~perform the method for allocating communication resources according to any one of claims 7 to 9.~~

receive a trigger frame from an access point, wherein the trigger frame comprises a plurality of frequency band information bits and communication resource information corresponding to each of a plurality of frequency bands identified by the plurality of frequency band information bits;

obtain, for a current station, the plurality of frequency bands identified by the plurality of frequency band information bits and a communication resource corresponding to each of the plurality of frequency bands, from the trigger frame; and

transmit data to the access point by using the corresponding communication resource in each of the plurality of frequency bands;

wherein the trigger frame further comprises an uplink bandwidth information bit and the communication resource information is related to an uplink bandwidth identified by the uplink bandwidth information bit, and the uplink bandwidth identified by the uplink bandwidth information bit comprises 320 MHz.

19. A computer-readable storage medium having computer instructions stored thereon, wherein when the instructions are executed by a processor, the actions of the method for allocating communication resources according to any one of claims 1 to ~~6~~5 are performed.

20. A computer-readable storage medium having computer instructions stored thereon, wherein when the instructions are executed by a processor, the actions of the method for transmitting data according to any one of claims ~~7-9~~6 to 8 are performed.