

CLAIMS

What is claimed is:

1. A data transmission method, comprising:

generating, by a network device, a single user physical layer protocol data unit (SU PPDU) ;

5 and

sending, by the network device, the SU PPDU to a station, wherein a bandwidth for sending the SU PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first content channel of an extremely high throughput-signaling (EHT-SIG) field of the SU PPDU, and the second sub-
10 bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field carried in a first (i-1) information bits of the first content channel is the same as an U-SIG overflow field carried in a first (i-1) information bits of the second content channel, and an ith information bit to a jth information bit of the first content channel carry a user field, and an ith information bit to a jth information bit of the second content
15 channel carry a padding field, wherein both i and j are positive integers, and $1 < i < j$.

2. A data transmission method, comprising:

receiving, by a station, a single user physical layer protocol data unit (SU PPDU), wherein a bandwidth for receiving the SU PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first
20 content channel of an extremely high throughput-signaling (EHT-SIG) field of the SU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field carried in a first (i-1) information bits of the first content channel is the same as an U-SIG overflow field carried in a first (i-1) information bits of the second content channel, and an ith information bit to a jth information bit of the first content
25 channel carry a user field, and an ith information bit to a jth information bit of the second content channel carry a padding field, wherein both i and j are positive integers, and $1 < i < j$.

3. The method according to claim 1 or 2, wherein the user field of the EHT-SIG field comprises an association identifier (AID) field, which is used to uniquely identify a station.

4. The method according to claim 3, wherein the SU PPDU comprises an universal signal (U-
30 SIG) field, the U-SIG field comprises a PPDU format indication field, and the PPDU format

indication field occupies more than 1 information bit.

5. The method according to claim 4, wherein the EHT-SIG field comprises a spatial reuse indication field.

6. The method according to claim 5, wherein the PPDU format indication field comprises
5 information indicating that a transmission scenario is SU, or comprises information indicating a trigger based (TB) frame.

7. The method according to claim 6, wherein the U-SIG field comprises one or more of the following:

10 a physical layer version identifier field, an uplink/downlink (UL/DL) indication field, a basic service set color(BSS color) indication field, a transmission opportunity (TXOP) indication field, a bandwidth indication field, the PPDU format indication field.

8. A data transmission method, comprising:

generating, by a network device, a multiple user physical layer protocol data unit (MU PPDU);
and

15 sending, by the network device, the MU PPDU to a station, wherein a bandwidth for sending the PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first content channel of an extremely high throughput-signaling (EHT-SIG) field of the MU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

20 an universal signal (U-SIG) overflow field carried in a first (i-1) information bits of the first content channel is the same as an U-SIG overflow field carried in a first (i-1) information bits of the second content channel, and an ith information bit to a jth information bit of the first content channel carry a resource unit allocation indication field and a user field, and an ith information bit to a jth information bit of the second content channel carry a padding field, wherein both i and j are
25 positive integers, and $1 < i < j$.

9. A data transmission method, comprising:

receiving, by a station, a multiple user physical layer protocol data unit (MU PPDU), wherein a bandwidth for receiving the MU PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first
30 content channel of an extremely high throughput-signaling (EHT-SIG) field of the MU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field carried in a first ($i-1$) information bits of the first content channel is the same as an U-SIG overflow field carried in a first ($i-1$) information bits of the second content channel, and an i^{th} information bit to a j^{th} information bit of the first content channel carry a resource unit allocation indication field and a user field, and an i^{th} information bit to a j^{th} information bit of the second content channel carry a padding field, wherein both i and j are positive integers, and $1 < i < j$.

10. The data transmission method according to claim 8 or 9, wherein the EHT-SIG field comprises one or more of the following fields:

a number of extremely high throughput-long training (EHT-LTF) field symbols, a field indicating a number of space streams, a field indicating a modulation and coding scheme, a coding indication field, a beamforming indication field.

11. The method according to claim 10, wherein the user field of the EHT-SIG field comprises an association identifier (AID) field, which is used to uniquely identify a station.

12. The method according to claim 11, wherein the MU PPDU comprises an universal signal (U-SIG) field, the U-SIG field comprises a PPDU format indication field, and the PPDU format indication field occupies more than 1 information bit.

13. The method according to claim 12, wherein the EHT-SIG field comprises a spatial reuse indication field.

14. The method according to claim 13, wherein the PPDU format indication field comprises information indicating that a transmission scenario is MU non-orthogonal frequency division multiple access (MU non-OFDMA), or MU orthogonal frequency division multiple access (MU OFDMA); or comprises information indicating a trigger based (TB) frame.

15. The method according to claim 14, wherein the U-SIG field comprises one or more of the following:

a physical layer version identifier field, an uplink/downlink (UL/DL) indication field, a basic service set color (BSS color) indication field, a transmission opportunity (TXOP) indication field, a bandwidth indication field, the PPDU format indication field.

16. The method according to claim 8 or 9, wherein the MU PPDU is a PPDU transmitted based on non-OFDMA.

17. A network device, comprising:

a processing unit, configured to generate a single user physical layer protocol data unit (SU

PPDU); and

a transceiver unit, configured to send the SU PPDU to a station, wherein a bandwidth for sending the SU PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first content channel of an extremely high throughput-signaling (EHT-SIG) field of the SU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field carried in a first $(i-1)$ information bits of the first content channel is the same as an U-SIG overflow field carried in a first $(i-1)$ information bits of the second content channel, and an i^{th} information bit to a j^{th} information bit of the first content channel carry a user field, and an i^{th} information bit to a j^{th} information bit of the second content channel carry a padding field, wherein both i and j are positive integers, and $1 < i < j$.

18. A station, comprising:

a transceiver unit, configured to receive a single user physical layer protocol data unit (SU PPDU), wherein a bandwidth for receiving the SU PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first content channel of an extremely high throughput-signaling (EHT-SIG) field of the SU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field carried in a first $(i-1)$ information bits of the first content channel is the same as an U-SIG overflow field carried in a first $(i-1)$ information bits of the second content channel, and an i^{th} information bit to a j^{th} information bit of the first content channel carry a user field, and an i^{th} information bit to a j^{th} information bit of the second content channel carry a padding field, wherein both i and j are positive integers, and $1 < i < j$.

19. The network device or the station according to claim 17 or 18, wherein the user field of the EHT-SIG field comprises an association identifier (AID) field, which is used to uniquely identify a station.

20. The network device or the station according to claim 19, wherein the SU PPDU comprises an universal signal (U-SIG) field, the U-SIG field comprises a PPDU format indication field, and the PPDU format indication field occupies more than 1 information bit.

21. The network device or the station according to claim 20, wherein the EHT-SIG field comprises a spatial reuse indication field.

22. The network device or the station according to claim 21, wherein the PPDU format indication field comprises information indicating that a transmission scenario is SU, or comprises information indicating a trigger based (TB) frame.

23. The network device or the station according to claim 22, wherein the U-SIG field
5 comprises one or more of the following:

a physical layer version identifier field, an uplink/downlink (UL/DL) indication field, a basic service set color(BSS color) indication field, a transmission opportunity (TXOP) indication field, a bandwidth indication field, the PPDU format indication field.

24. A network device, comprising:

10 a processing unit, configured to generate a multiple user physical layer protocol data unit (MU PPDU); and

a transceiver unit, configured to send the MU PPDU, wherein a bandwidth for sending the PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first content channel of an extremely
15 high throughput-signaling (EHT-SIG) field of the MU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field carried in a first $(i-1)$ information bits of the first content channel is the same as an U-SIG overflow field carried in a first $(i-1)$ information bits of the second content channel, and an i^{th} information bit to a j^{th} information bit of the first content
20 channel carry a resource unit allocation indication field and a user field, and an i^{th} information bit to a j^{th} information bit of the second content channel carry a padding field, wherein both i and j are positive integers, and $i < j$.

25. A station, comprising:

a transceiver unit, configured to receive a multiple user physical layer protocol data unit (MU
25 PPDU), wherein a bandwidth for receiving the MU PPDU is greater than 20 MHz, and the bandwidth comprises a first sub-bandwidth and a second sub-bandwidth, wherein the first sub-bandwidth carries a first content channel of an EHT-SIG field of the MU PPDU, and the second sub-bandwidth carries a second content channel of the EHT-SIG field; and

an universal signal (U-SIG) overflow field of the first content channel is the same as an U-
30 SIG overflow field of the second content channel, and an i^{th} information bit to a j^{th} information bit of the first content channel carry a resource unit allocation indication field and a user field, and an

i^{th} information bit to a j^{th} information bit of the second content channel carry a padding field, wherein both i and j are positive integers, and $i < j$.

26. The network device or the station according to claim 24 or 25, wherein the EHT-SIG field comprises one or more of the following fields:

5 a number of extremely high throughput-long training (EHT-LTF) field symbols, a field indicating a number of space streams, a field indicating a modulation and coding scheme, a coding indication field, a beamforming indication field.

27. The network device or the station according to claim 26, wherein the user field of the EHT-SIG field comprises an association identifier (AID) field, which is used to uniquely identify
10 a station.

28. The network device or the station according to claim 27, wherein the MU PPDU comprises an universal signal (U-SIG) field, the U-SIG field comprises a PPDU format indication field, and the PPDU format indication field occupies more than 1 information bit.

29. The network device or the station according to claim 28, wherein the EHT-SIG field
15 comprises a spatial reuse indication field.

30. The network device or the station according to claim 29, wherein the PPDU format indication field comprises information indicating that a transmission scenario is MU non-orthogonal frequency division multiple access (MU non-OFDMA), or MU orthogonal frequency division multiple access (MU OFDMA); or comprises information indicating a trigger based (TB)
20 frame.

31. The network device or the station according to claim 30, wherein the U-SIG field comprises one or more of the following:

a physical layer version identifier field, an uplink/downlink (UL/DL) indication field, a basic service set color(BSS color) indication field, a transmission opportunity (TXOP) indication field,
25 a bandwidth indication field, the PPDU format indication field.

32. The network device according to claim 24 or the station according to claim 25, wherein the MU PPDU is a PPDU transmitted based on non-OFDMA.

33. A network device, comprising a processor, wherein the processor is coupled to a memory; and when the processor executes a computer program or instructions in the memory, the method
30 according to any one of claims 1, 3-7 is performed, or the method according to any one of claims 8, 10-16 is performed.

34. A station, comprising a processor, wherein the processor is coupled to a memory; and when the processor executes a computer program or instructions in the memory, the method according to any one of claims 2-7 is performed, or the method according to any one of claims 9-16 is performed.

5 35. A computer-readable storage medium, wherein the computer-readable storage medium stores computer instructions; and the computer instructions instruct a network device to perform the method according to any one of claims 1, 3-7, the computer instructions instruct a network device to perform the method according to any one of claims 8, 10-16, the computer instructions instruct a station to perform the method according to any one of claims 2 to 7, or the computer
10 instructions instruct a station to perform the method according to any one of claims 9-16.

36. A computer program product, wherein the computer program product comprises a computer program; and when the computer program runs on a computer, the computer is enabled to perform the method according to any one of claims 1, 3 -7, the computer is enabled to perform the method according to any one of claims 8, 10-16, the computer is enabled to perform the method
15 according to any one of claims 2-7, or the computer is enabled to perform the method according to any one of claims 9-16.

37. A chip, wherein the chip comprises a processor, a memory, and an interface circuit, wherein the memory, the interface circuit, and the processor are interconnected through lines; the memory stores instructions; and when the processor executes the instructions in the memory, the
20 method according to any one of claims 1-7, and 8-16 is performed.

38. A program, wherein when the program is executed by a computer, the method according to any one of claims 1-7, and 8-16 is implemented.

39. An apparatus, wherein the apparatus is configured to implement the method according to any one of claims 1-7, and 8-16.

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