CLAIMS

What is claimed is:

~~1. A puncturing information indication method, wherein the method comprises:~~

~~generating a physical layer protocol data unit (PHY protocol data unit, PPDU) comprising a preamble, wherein the preamble comprises preamble puncturing (preamble puncturing) information; and~~

~~sending the preamble puncturing information on a first content channel, wherein a total bandwidth of the first content channel is less than a bandwidth of the PPDU.~~

~~2. A puncturing information indication method, wherein the method comprises:~~

~~receiving preamble puncturing (preamble puncturing) information on a first content channel, wherein the preamble puncturing information is comprised in a preamble of a physical layer protocol data unit (PHY protocol data unit, PPDU), and a total bandwidth of the first content channel is less than a bandwidth of the PPDU; and~~

~~determining a usage status of a channel of the PPDU based on the preamble puncturing information.~~

~~3. The method according to claim 1 or 2, wherein the preamble further comprises location indication information, and the location indication information indicates a frequency domain location of the first content channel.~~

~~4. The method according to claim 3, wherein the location indication information is located in a universal (universal SIG, U-SIG) field, and the preamble puncturing information is located in a field after the U-SIG field.~~

~~5. The method according to any one of claims 1 to 4, wherein the first content channel comprises an odd-numbered subchannel, the first content channel comprises an even-numbered subchannel, or the first content channel comprises a specified subchannel, wherein a bandwidth of a subchannel is a fixed value.~~

~~6. The method according to any one of claims 1 to 5, wherein if the first content channel comprises a subchannel corresponding to a secondary 40 MHz bandwidth, the bandwidth of the PPDU is 80 MHz;~~

~~if the first content channel comprises a subchannel corresponding to a second secondary 80 MHz bandwidth, the bandwidth of the PPDU is 160 MHz;~~

if the first content channel comprises a subchannel corresponding to a third secondary 80 MHz bandwidth, the bandwidth of the PPDU is 240 MHz; and

if the first content channel comprises a subchannel corresponding to a secondary 160 MHz bandwidth, the bandwidth of the PPDU is 320 MHz.

7. A puncturing information indication apparatus, wherein the apparatus comprises:

a processing unit, configured to generate a physical layer protocol data unit (PHY protocol data unit, PPDU) comprising a preamble, wherein the preamble comprises preamble puncturing (preamble puncturing) information; and

a transceiver unit, configured to send the preamble puncturing information on a first content channel, wherein a total bandwidth of the first content channel is less than a bandwidth of the PPDU.

8. A puncturing information indication apparatus, wherein the apparatus comprises:

a transceiver unit, configured to receive preamble puncturing (preamble puncturing) information on a first content channel, wherein the preamble puncturing information is comprised in a preamble of a physical layer protocol data unit (PHY protocol data unit, PPDU), and a total bandwidth of the first content channel is less than a bandwidth of the PPDU; and

a processing unit, configured to determine a usage status of a channel of the PPDU based on the preamble puncturing information.

9. The apparatus according to claim 7 or 8, wherein the preamble further comprises location indication information, and the location indication information indicates a frequency domain location of the first content channel.

10. The apparatus according to claim 9, wherein the location indication information is located in a universal (universal SIG, U-SIG) field, and the preamble puncturing information is located in a field after the U-SIG field.

11. The apparatus according to any one of claims 7 to 10, wherein the first content channel comprises an odd-numbered subchannel, the first content channel comprises an even-numbered subchannel, or the first content channel comprises a specified subchannel, wherein a bandwidth of a subchannel is a fixed value.

12. The apparatus according to any one of claims 7 to 11, wherein if the first content channel comprises a subchannel corresponding to a secondary 40 MHz bandwidth, the bandwidth of the PPDU is 80 MHz;

~~if the first content channel comprises a subchannel corresponding to a second secondary 80 MHz bandwidth, the bandwidth of the PPDU is 160 MHz;~~

~~if the first content channel comprises a subchannel corresponding to a third secondary 80 MHz bandwidth, the bandwidth of the PPDU is 240 MHz; and~~

~~if the first content channel comprises a subchannel corresponding to a secondary 160 MHz bandwidth, the bandwidth of the PPDU is 320 MHz.~~

~~13~~1. A puncturing information indication method, wherein the method comprises:

generating a physical layer protocol data unit ~~(PHY protocol data unit~~, PPDU~~)~~ comprising a preamble, wherein the preamble comprises a ~~universal (~~universal-SIG, U-SIG~~)~~ field, the universal field comprises mode indication information and corresponding indication information, the mode indication information indicates different modes, and the corresponding indication information indicates preamble puncturing status~~information~~ corresponding to a mode indicated by the mode indication information; and

sending the PPDU.

~~14~~2. A puncturing information indication method, wherein the method comprises:

receiving a physical layer protocol data unit, PPDU comprising a preamble~~preamble puncturing (preamble puncturing) information, wherein the preamble puncturing information is comprised in a preamble of a physical layer protocol data unit (PHY protocol data unit, PPDU)~~, wherein the preamble comprises a ~~universal (~~universal-SIG, U-SIG~~)~~ field, the universal field comprises mode indication information and corresponding indication information, the mode indication information indicates different modes, and the corresponding indication information indicates the preamble puncturing ~~information~~ status corresponding to a mode indicated by the mode indication information; and

determining the preamble puncturing status~~a usage status of a channel of the PPDU,~~ based on the mode indication information and corresponding indication information~~preamble puncturing information~~.

~~15~~3. The method according to claim ~~13~~ 1 or ~~14~~2, wherein the mode indication information indicates a ~~fourth~~ mode, the corresponding indication information is a bitmap indicating the preamble puncturing status corresponding to the mode.

4. The method according to claim 3, the bitmap indicates the preamble puncturing status of a subchannel of 80MHz.

~~indicates preamble puncturing information corresponding to the fourth mode, the preamble puncturing information is a bitmap (bitmap) indicating whether a subchannel is punctured, and a bandwidth of the subchannel is 80 MHz.~~

~~16~~5. The method according to any one of claims 1 to 4~~claim 13 or 14~~, wherein the mode indication information indicates a ~~fifth~~ mode, the corresponding indication information is an index indicating ~~indicates~~ preamble puncturing status~~information~~ corresponding to the ~~fifth~~ mode~~, and the preamble puncturing information is an index (index) indicating whether a subchannel is punctured~~.

~~17~~6. The method according to any one of claims ~~13~~ 1 to ~~16~~5, wherein the U-SIG~~universal~~ field further comprises a bandwidth subfield, and the bandwidth subfield indicates that a bandwidth of the PPDU is any one of the following:

20 MHz, 40 MHz, 80 MHz, 160 MHz, or 320 MHz.

~~18~~7. The method according to any one of claims ~~13~~ 1 to ~~16~~6, wherein the mode indication information and the corresponding indication information are located in a same subfield in the U-SIG field; or

the mode indication information and the corresponding indication information are located in different subfields in the U-SIG field.

8. A puncturing information indication apparatus, wherein the apparatus comprises:

generating unit, configured to generate a physical layer protocol data unit, PPDU comprising a preamble, wherein the preamble comprises a universal-SIG, U-SIG field, the universal field comprises mode indication information and corresponding indication information, the mode indication information indicates different modes, and the corresponding indication information indicates preamble puncturing status corresponding to a mode indicated by the mode indication information; and

sending unit, configured to send the PPDU.

9. A puncturing information indication apparatus, wherein the apparatus comprises:

receiving unit, configured to receive a physical layer protocol data unit, PPDU comprising a preamble, wherein the preamble comprises a universal-SIG, U-SIG field, the universal field comprises mode indication information and corresponding indication information, the mode indication information indicates different modes, and the corresponding indication information indicates the preamble puncturing status corresponding to a mode indicated by the mode indication

information; and

processing unit, configured to determine the preamble puncturing status, based on the mode indication information and corresponding indication information.

10. The apparatus according to claim 8 or 9, wherein the mode indication information indicates a mode, the corresponding indication information is a bitmap indicating the preamble puncturing status corresponding to the mode.

11. The apparatus according to claim 10, the bitmap indicates the preamble puncturing status of a subchannel of 80MHz.

12. The apparatus according to any one of claims 8 to 11, wherein the mode indication information indicates a mode, the corresponding indication information is an index indicating preamble puncturing status corresponding to the mode.

13. The apparatus according to any one of claims 8 to 12, wherein the U-SIG field further comprises a bandwidth subfield, and the bandwidth subfield indicates that a bandwidth of the PPDU is any one of the following:

20 MHz, 40 MHz, 80 MHz, 160 MHz, or 320 MHz.

14. The apparatus according to any one of claims 8 to 13, wherein the mode indication information and the corresponding indication information are located in a same subfield in the U-SIG field; or

the mode indication information and the corresponding indication information are located in different subfields in the U-SIG field.

~~19. A puncturing information indication apparatus, wherein the apparatus is configured to perform the method according to any one of claims 13 to 18.~~

~~20. A puncturing information indication apparatus, wherein the apparatus comprises a processor and a memory communicatively connected to the processor;~~

~~the memory is configured to store computer instructions; and~~

~~the processor is configured to execute the computer instructions, to perform the method according to any one of claims 1 to 6 and 13 to 18.~~

~~21. A puncturing information indication apparatus, wherein the apparatus comprises a processing circuit and an interface circuit, the interface circuit is configured to read code instructions, and the processing circuit is configured to execute the code instructions, to perform the method according to any one of claims 1 to 6 and 13 to 18.~~

~~22~~15. A computer-readable storage medium, wherein the computer-readable storage medium is configured to store a computer program used to perform the method according to any one of claims 1 to ~~6~~7 ~~and 13 to 18~~.

~~23. A computer program, wherein the computer program comprises instructions used to perform the method according to any one of claims 1 to 6 and 13 to 18.~~