CLAIMS

1. A method for triggering uplink transmission in a wireless local area network (WLAN), the method comprising:

generating, by an access point (AP), a trigger frame based on a type of physical layer protocol data unit (PPDU) transmissions to be solicited from a plurality of stations (STAs) in the WLAN, a common information field of the trigger frame comprising a first subfield indicating whether or not a special user information field is present in the trigger frame,

when the first subfield indicates that the special user information field is present in the trigger frame, the trigger frame is an enhanced trigger frame; wherein the special user information field is located immediately after the common information field, the common information field includes an aggregated PPDU (A-PPDU) Flag subfield indicating whether a trigger-based frequency domain aggregated PPDU (TB FD-A-PPDU) transmission or an extremely high throughput trigger-based PPDU (EHT TB PPDU) transmission is solicited, and the A-PPDU Flag subfield is set to 0 to indicate the EHT TB PPDU transmission is solicited, and set to 1 to indicate the TB FD-A-PPDU transmission is solicited, and

when the TB FD-A-PPDU transmission is solicited and a bandwidth (BW) of the TB FD-A-PPDU is set to 320 MHz, a BW allocated for a high efficiency (HE) TB PPDU transmission indicated by a UL BW subfield of the common information field is a primary 80 MHz channel (P80), or a primary 160 MHz channel (P160), while a BW allocated for an extremely high throughput (EHT) PPDU transmission from EHT STAs indicated by a subfield of the special user information field is a secondary 160 MHz channel (S160); and

transmitting, by the AP, the generated trigger frame to the plurality of STAs.

2. The method according to claim 1, wherein the special user information field carries necessary universal SIGNAL (U-SIG) subfields of the solicited PPDUs.

3. An access point (AP) for triggering uplink transmission in a wireless local area network (WLAN), the AP comprising: a memory configured to store instructions for triggering uplink transmission in the WLAN, and a processor communicably coupled with the memory, the

processor configured to execute the instructions to:

generate a trigger frame based on a type of physical layer protocol data unit (PPDU) transmissions to be solicited from a plurality of stations (STAs) in the WLAN, a common information field of the trigger frame comprising a first subfield indicating whether or not a special user information field is present in the trigger frame,

when the first subfield indicates that the special user information field is present in the trigger frame, the trigger frame is an enhanced trigger frame; wherein the special user information field is located immediately after the common information field, the common information field includes an aggregated PPDU (A-PPDU) Flag subfield indicating whether a trigger-based frequency domain aggregated PPDU (TB FD-A-PPDU) transmission or an extremely high throughput trigger-based PPDU (EHT TB PPDU) transmission is solicited, and the A-PPDU Flag subfield is set to 0 to indicate the EHT TB PPDU transmission is solicited, and set to 1 to indicate the TB FD-A-PPDU transmission is solicited, and

when the TB FD-A-PPDU transmission is solicited and a bandwidth (BW) of the TB FD-A-PPDU is set to 320 MHz, a BW allocated for a high efficiency (HE) TB PPDU transmission indicated by a UL BW subfield of the common information field is a primary 80 MHz channel (P80), or a primary 160 MHz channel (P160), while a BW allocated for an extremely high throughput (EHT) PPDU transmission from EHT STAs indicated by a subfield of the special user information field is a secondary 160 MHz channel (S160); and

transmit the generated trigger frame to the plurality of STAs.

4. The AP according to claim 3, wherein the special user information field carries necessary universal SIGNAL (U-SIG) subfields of the solicited PPDUs.

5. A method for triggering uplink transmission in a wireless local area network (WLAN), the method comprising:

receiving, by a station (STA), a trigger frame from an access point (AP), wherein the trigger frame is generated based on a type of physical layer protocol data unit (PPDU) transmissions to be solicited from a plurality of STAs, a common information field of the trigger frame comprising a first subfield indicating whether or not a special user information field is present in the trigger

frame,

when the first subfield indicates that the special user information field is present in the trigger frame, the trigger frame is an enhanced trigger frame; wherein the special user information field is located immediately after the common information field, the common information field includes an aggregated PPDU (A-PPDU) Flag subfield indicating whether a trigger-based frequency domain aggregated PPDU (TB FD-A-PPDU) transmission or an extremely high throughput trigger-based PPDU (EHT TB PPDU) transmission is solicited, and the A-PPDU Flag subfield is set to 0 to indicate the EHT TB PPDU transmission is solicited, and set to 1 to indicate the TB FD-A-PPDU transmission is solicited, and

when the TB FD-A-PPDU transmission is solicited and a bandwidth (BW) of the TB FD-A-PPDU is set to 320 MHz, a BW allocated for a high efficiency (HE) TB PPDU transmission indicated by a UL BW subfield of the common information field is a primary 80 MHz channel (P80), or a primary 160 MHz channel (P160), while a BW allocated for an extremely high throughput (EHT) PPDU transmission from EHT STAs indicated by a subfield of the special user information field is a secondary 160 MHz channel (S160); and

determining, by the STA, the type of the solicited PPDU transmissions by decoding the common information field of the received trigger frame.

6. The method according to claim 5, wherein the special user information field carries necessary universal SIGNAL (U-SIG) subfields of the solicited PPDUs.

7. A station (STA) for triggering uplink transmission in a wireless local area network (WILAN), the STA comprising a memory configured to store instructions for triggering uplink transmission in the WLAN, and a processor communicably coupled with the memory, the processor configured to execute the instructions to:

receive a trigger frame from an access point (AP), wherein the trigger frame is generated based on a type of physical layer protocol data unit (PPDU) transmissions to be solicited from a plurality of STAs, a common information field of the trigger frame comprising a first subfield indicating whether or not a special user information field is present in the trigger frame,

when the first subfield indicates that the special user information field is present in the trigger frame, the trigger frame is an enhanced trigger frame; wherein the special user information

field is located immediately after the common information field, the common information field includes an aggregated PPDU (A-PPDU) Flag subfield indicating whether a trigger-based frequency domain aggregated PPDU (TB FD-A-PPDU) transmission or an extremely high throughput trigger-based PPDU (EHT TB PPDU) transmission is solicited, and the A-PPDU Flag subfield is set to 0 to indicate the EHT TB PPDU transmission is solicited, and set to 1 to indicate the TB FD-A-PPDU transmission is solicited, and

when the TB FD-A-PPDU transmission is solicited and a bandwidth (BW) of the TB FD-A-PPDU is set to 320 MHz, a BW allocated for a high efficiency (HE) TB PPDU transmission indicated by a UL BW subfield of the common information field is a primary 80 MHz channel (P80), or a primary 160 MHz channel (P160), while a BW allocated for an extremely high throughput (EHT) PPDU transmission from EHT STAs indicated by a subfield of the special user information field is a secondary 160 MHz channel (S160); and

determine the type of the solicited PPDU transmissions by decoding the common information field of the received trigger frame.

8. The STA according to claim 7, wherein the special user information field carries necessary universal SIGNAL (U-SIG) subfields of the solicited PPDUs.

9. A computer program product comprising instructions to cause a computer to perform a method according to claim 1 or 2, or perform the method according to claim 5 or 6, when executed thereon.