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 indicating whether or not a special user information field is present in the trigger frame, and

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

2. The method according to claim 1, wherein the common information field of the trigger frame comprises a first subfield indicating whether the trigger frame is a first type trigger frame or a second type trigger frame, if the trigger frame is the second type trigger frame, the common information field further comprises a second subfield indicating the type of the PPDU transmissions.

3. The method according to claim 1 or 2, wherein the special user information field is located immediately after the common information field.

4. The method according to any one of claims 1-3, wherein the special user information field carries necessary universal SIGNAL (U-SIG) subfields of the solicited PPDUs.

5. The method according to any one of claims 1-4, wherein the solicited PPDU transmissions are extremely high throughput trigger-based PPDUs (EHT TB PPDUs).

6. The method according to any one of claims 1-5, wherein a second subfield of the common information field is an aggregated PPDU (A-PPDU) Flag subfield indicating whether a trigger-based frequency domain aggregated PPDU (TB FD-A-PPDU) transmission or an EHT TB PPDU transmission is solicited.

7. The method according to claim 6, wherein 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

if 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 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 release 2 (R2) EHT STAs is a secondary 160 MHz channel (S160).

8. The method according to claim 6, wherein the A-PPDU Flag subfield comprises Boolean values to indicate an EHT TB PPDU transmission is solicited or TB FD-A-PPDU transmission is solicited.

9. The method according to claim 2, wherein the first subfield further indicates the trigger frame is an enhanced trigger frame or the special user information field is not present in the trigger frame.

10. 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 indicating whether or not a special user information field is present in the trigger frame, and

transmit the generated trigger frame to the plurality of STAs.

11. The AP according to claim 10, wherein the common information field of the trigger frame comprises a first subfield indicating whether the trigger frame is a first type trigger frame or a second type trigger frame, if the trigger frame is the second type trigger frame, the common information field further comprises a second subfield indicating the type of the PPDU transmissions.

12. The AP according to claim 10 or 11, wherein the special user information field is located immediately after the common information field.

13. The AP according to any one of claims 10-12, wherein the special user information field carries necessary universal SIGNAL (U-SIG) subfields of the solicited PPDUs.

14. The AP according to any one of claims 10-13, wherein the solicited PPDU transmissions are extremely high throughput trigger-based PPDUs (EHT TB PPDUs).

15. The AP according to any one of claims 10-14, wherein a second subfield of the common information field is an aggregated PPDU (A-PPDU) Flag subfield indicating whether a trigger-based frequency domain aggregated PPDU (TB FD-A-PPDU) transmission or an EHT TB PPDU transmission is solicited.

16. The AP according to claim 15, wherein 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

if 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 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 release 2 (R2) EHT STAs is a secondary 160 MHz channel (S160).

17. The AP according to claim 15, wherein the A-PPDU Flag subfield comprises Boolean values to indicate an EHT TB PPDU transmission is solicited or TB FD-A-PPDU transmission is solicited.

18. The AP according to claim 11, wherein the first subfield further indicates the trigger frame is an enhanced trigger frame or the special user information field is not present in the trigger frame.

19. 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 indicating whether or not a special user information field is present in the trigger frame, and

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

20. A station (STA) for triggering uplink transmission in a WILAN, the STA comprising a memory 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 indicating whether or not a special user information field is present in the trigger frame, and

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