

CLAIMS

1. A method for soliciting a trigger-based (TB) physical layer protocol data unit (PPDU) 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 TB PPDU transmissions to be solicited from a plurality of stations (STAs) in the WLAN, wherein the type of TB PPDU transmissions comprises high efficiency (HE) TB PPDU transmissions, extremely high throughput (EHT) TB PPDU transmissions, or TB frequency domain aggregated PPDU (FD-A-PPDU) transmissions, and one or two subfields in the trigger frame indicate a bandwidth (BW) of the solicited TB PPDU, and

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

2. The method according to claim 1, wherein a common info field of the trigger frame comprises an uplink (UL) bandwidth (BW) subfield indicating a BW of the solicited HE TB PPDU.

3. The method according to claim 2, wherein the BW of the solicited HE TB PPDU indicated by the UL BW subfield in the common info field of the trigger frame is in the HE SIGNAL A (HE SIG-A) field of the solicited HE TB PPDU.

4. The method according to claim 2 or claim 3, wherein the common info field of the trigger frame further comprises an enhanced trigger frame flag subfield which indicates whether the trigger frame is an 802.11ax trigger frame or an enhanced trigger frame.

~~5. The method according to claim 4, wherein when the enhanced trigger frame flag subfield indicates that the trigger frame is an enhanced trigger frame, both the UL BW subfield and a Delta EHT UL BW subfield or both the UL BW subfield and an UL BW extension subfield indicate a BW of the solicited EHT TB PPDU.~~

~~6. The method according to claim 5, wherein the BW of the solicited EHT TB PPDU indicated by both the UL BW subfield and the Delta EHT UL BW subfield or by both the UL BW subfield and the UL BW extension subfield is in the universal SIGNAL (U-SIG) field of the solicited EHT TB PPDU.~~

~~7. The method according to claim 5 or claim 6, wherein the BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz, 160 MHz or 320 MHz.~~

~~8. The method according to claim 5 to claim 7, wherein the indicated BW of the solicited EHT TB PPDU is the same as the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160 MHz.~~

~~9. The method according to claim 5 to claim 7, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW larger than the indicated BW of the solicited HE TB PPDU when the BW of the solicited EHT TB PPDU is 320 MHz.~~

~~10. The method according to claim 5 to claim 7, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW smaller than the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 80 MHz.~~

~~11. The method according to claim 5 to claim 10, wherein the Delta EHT UL BW subfield occupies 2 bits of the enhanced trigger frame.~~

~~12. The method according to claim 4 to claim 11, wherein the enhanced trigger frame includes a common info field and a user info list field comprising one or more user info fields.~~

~~13. The method according to claim 2 to claim 12, wherein the BW of the solicited HE TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160/80+80 MHz.~~

~~14. The method according to claim 2 to claim 13, wherein the UL BW subfield occupies 2 bits in the common info field of the trigger frame.~~

~~15. The method according to claim 1 to claim 14, wherein the plurality of STAs comprises HE STAs and/or EHT STAs.~~

~~165. A method for soliciting a trigger-based (TB) physical layer protocol data unit (PPDU) transmission in a wireless local area network (WLAN), the method comprising:~~

~~receiving (1401), by a station (STA), a trigger frame which is used to solicit a type of TB PPDU transmissions from a plurality of STAs in the WLAN, wherein the type of TB PPDU transmissions comprises high efficiency (HE) trigger-based (TB) PPDU transmissions, extremely high throughput (EHT) TB PPDU transmissions, or TB frequency domain aggregated PPDU (FD-A-PPDU) transmissions, and one or two subfields in the trigger frame indicate a bandwidth (BW) of the solicited TB PPDU, and~~

~~transmitting (1402), by the STA, the solicited TB PPDU in the BW indicated by the one or two subfields in the trigger frame.~~

~~176. The method according to claim 165, wherein a common info field of the trigger frame comprises an uplink (UL) bandwidth (BW) subfield indicating a BW of the solicited HE TB PPDU.~~

~~187. The method according to claim 176, wherein the BW of the solicited HE TB PPDU indicated by the UL BW subfield in the common info field of the trigger frame is in the HE SIGNAL A (HE SIG-A) field of the solicited HE TB PPDU.~~

~~198. The method according to claim 17 or claim 186 or 7, wherein the common info field of the trigger frame further comprises an enhanced trigger frame flag subfield which indicates whether the trigger frame is an 802.11ax trigger frame or an enhanced trigger frame.~~

~~209. The method according to claim 198, wherein when the enhanced trigger frame flag subfield indicates that the trigger frame is an enhanced trigger frame, both the UL BW subfield and a Delta EHT UL BW subfield or both the UL BW subfield and an UL BW extension subfield indicate a BW of the solicited EHT TB PPDU.~~

~~2110. The method according to claim 209, wherein the BW of the solicited EHT TB PPDU indicated by both the UL BW subfield and the Delta EHT UL BW subfield or by both the UL BW subfield and the UL BW extension subfield is in the universal SIGNAL (U-SIG) field of the solicited EHT TB PPDU.~~

~~2211. The method according to claim 20 or claim 219 or 10, wherein the BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz, 160 MHz or 320 MHz.~~

23~~12~~. The method according to any one of claims 9 to 11~~claim 20 to claim 22~~, wherein the indicated BW of the solicited EHT TB PPDU is the same as the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160 MHz.

24~~13~~. The method according to any one of claims 20 to claim 22~~9 to 11~~, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW larger than the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 320 MHz.

25~~14~~. The method according to any one of claims 20 to claim 22~~9 to 11~~, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW smaller than the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 80 MHz.

26~~15~~. The method according to any one of claims 20 to claim 25~~9 to 14~~, wherein the Delta EHT UL BW subfield occupies 2 bits of the enhanced trigger frame.

27~~16~~. The method according to any one of claims 19 to claim 26~~8 to 15~~, wherein the enhanced trigger frame includes a common info field and a user info list field comprising one or more user info fields.

28~~17~~. The method according to any one of claims 17 to claim 27~~6 to 16~~, wherein the BW of the solicited HE TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160/80+80 MHz.

29~~18~~. The method according to any one of claims 17 to claim 28~~6 to 17~~, wherein the UL BW subfield occupies 2 bits in the common info field of the trigger frame, and

30. The method according to claim 16 to claim 29, wherein the plurality of STAs comprises HE STAs and/or EHT STAs.

31~~19~~. An access point (AP) for soliciting a trigger-based (TB) physical layer protocol data unit (PPDU) in a wireless local area network (WLAN), wherein the AP is configured to perform the method according to any one of claims 1 to 4.comprises:

— a generation unit configured to generate a trigger frame based on a type of TB PPDU transmissions to be solicited from a plurality of stations (STAs) in the WLAN, wherein the type of TB PPDU transmissions comprises high efficiency (HE) TB PPDU transmissions, extremely high throughput (EHT) TB PPDU transmissions, or TB frequency domain aggregated PPDU (FD-A PPDU) transmissions, and one or two subfields in the trigger frame indicate a bandwidth (BW) of the solicited TB PPDU, and

— a first transmission unit configured to transmit the generated trigger frame to the plurality of STAs.

32. The AP according to claim 31, wherein a common info field of the trigger frame comprises an uplink (UL) bandwidth (BW) subfield indicating a BW of the solicited HE TB PPDU.

33. The AP according to claim 32, wherein the BW of the solicited HE TB PPDU indicated by the UL BW subfield in the common info field of the trigger frame is in the HE SIGNAL A (HE

SIG-A) field of the solicited HE TB PPDU.

34. The AP according to claim 32 or claim 33, wherein the common info field of the trigger frame further comprises an enhanced trigger frame flag subfield which indicates whether the trigger frame is an 802.11ax trigger frame or an enhanced trigger frame.

35. The AP according to claim 34, wherein when the enhanced trigger frame flag subfield indicates that the trigger frame is an enhanced trigger frame, both the UL BW subfield and a Delta EHT UL BW subfield or both the UL BW subfield and an UL BW extension subfield indicate a BW of the solicited EHT TB PPDU.

36. The AP according to claim 35, wherein the BW of the solicited EHT TB PPDU indicated by both the UL BW subfield and the Delta EHT UL BW subfield or by both the UL BW subfield and the UL BW extension subfield is in the universal SIGNAL (U-SIG) field of the solicited EHT TB PPDU.

37. The AP according to claim 35 or claim 36, wherein the BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz, 160 MHz or 320 MHz.

38. The AP according to claim 35 to claim 37, wherein the indicated BW of the solicited EHT TB PPDU is the same as the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160 MHz.

39. The AP according to claim 35 to claim 37, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW larger than the indicated BW of the solicited HE TB PPDU when the BW of the solicited EHT TB PPDU is 320 MHz

40. The AP according to claim 35 to claim 37, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW smaller than the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 80 MHz.

41. The AP according to claim 35 to claim 40, wherein the Delta EHT UL BW subfield occupies 2 bits of the enhanced trigger frame.

42. The AP according to claim 34 to claim 41, wherein the enhanced trigger frame includes a common info field and a user info list field comprising one or more user info fields.

43. The AP according to claim 32 to claim 42, wherein the BW of the solicited HE TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160/80+80 MHz.

44. The AP according to claim 32 to claim 43, wherein the UL BW subfield occupies 2 bits in the common info field of the trigger frame.

45. The AP according to claim 31 to claim 44, wherein the plurality of STAs comprises HE STAs and/or EHT STAs.

46. A station (STA) for soliciting a trigger-based (TB) physical layer protocol data unit (PPDU) in a wireless local area network (WLAN), wherein the STA is configured to perform the method according to any one of claims 5 to 18.

comprises:

— a reception unit configured to receive a trigger frame which is used to solicit a type

of TB PPDU transmissions from a plurality of STAs in the WLAN, wherein the type of TB PPDU transmissions comprises high efficiency (HE) trigger-based (TB) PPDU transmissions, extremely high throughput (EHT) TB PPDU transmissions, or TB frequency domain aggregated PPDU (FD-A-PPDU) transmissions, and one or two subfields in the trigger frame indicate a bandwidth (BW) of the solicited TB PPDU, and

— a second transmission unit configured to transmit the solicited TB PPDU in the BW indicated by the one or two subfields in the trigger frame.

47. The STA according to claim 46, wherein a common info field of the trigger frame comprises an uplink (UL) bandwidth (BW) subfield indicating a BW of the solicited HE TB PPDU.

48. The STA according to claim 47, wherein the BW of the solicited HE TB PPDU indicated by the UL BW subfield in the common info field of the trigger frame is in the HE SIGNAL A (HE SIG-A) field of the solicited HE TB PPDU.

49. The STA according to claim 47 or claim 48, wherein the common info field of the trigger frame further comprises an enhanced trigger frame flag subfield which indicates whether the trigger frame is an 802.11ax trigger frame or an enhanced trigger frame.

50. The STA according to claim 49, wherein when the enhanced trigger frame flag subfield indicates that the trigger frame is an enhanced trigger frame, both the UL BW subfield and a Delta EHT UL BW subfield or both the UL BW subfield and an UL BW extension subfield indicate a BW of the solicited EHT TB PPDU.

51. The STA according to claim 50, wherein the BW of the solicited EHT TB PPDU indicated by both the UL BW subfield and the Delta EHT UL BW subfield or by both the UL BW subfield and the UL BW extension subfield is in the universal SIGNAL (U-SIG) field of the solicited EHT TB PPDU.

52. The STA according to claim 50 or claim 51, wherein the BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz, 160 MHz or 320 MHz.

53. The STA according to claim 50 to claim 52, wherein the indicated BW of the solicited EHT TB PPDU is the same as the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160 MHz.

54. The STA according to claim 50 to claim 52, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW larger than the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 320 MHz.

55. The STA according to claim 50 to claim 52, wherein the indicated BW of the solicited EHT TB PPDU is the next available BW smaller than the indicated BW of the solicited HE TB PPDU when the indicated BW of the solicited EHT TB PPDU is 80 MHz.

56. The STA according to claim 50 to claim 55, wherein the Delta EHT UL BW subfield occupies 2 bits of the enhanced trigger frame.

57. The STA according to claim 49 to claim 56, wherein the enhanced trigger frame includes a common info field and a user info list field comprising one or more user info fields.

58. The STA according to claim 47 to claim 57, wherein the BW of the solicited HE TB PPDU is 20 MHz, 40 MHz, 80 MHz or 160/80+80 MHz.

59. The STA according to claim 47 to claim 58, wherein the UL BW subfield occupies 2 bits in the common info field of the trigger frame.

60. The STA according to claim 46 to claim 59, wherein the plurality of STAs comprises HE STAs and/or EHT STAs.

61. An AP for soliciting a TB PPDU transmission in a WLAN, the AP comprising a memory to store instructions for performing a method for soliciting a TB PPDU transmission in the WLAN according to any one of claim 1 to claim 15, and a processor communicably coupled with the memory, the processor configured to execute the instructions stored in the memory to perform the method for soliciting the TB PPDU transmission in the WLAN.

62. An STA for soliciting a TB PPDU transmission in a WLAN, the STA comprising a memory to store instructions for performing a method for soliciting a TB PPDU transmission in the WLAN according to any one of claim 16 to claim 30, and a processor communicably coupled with the memory, the processor configured to execute the instructions stored in the memory to perform the method for soliciting the TB PPDU transmission in the WLAN.

63. A computer program product comprising instructions to cause a computer to perform a method for soliciting a TB PPDU transmission in a WLAN according to any one of claim 1 to claim 15, or any one of claim 16 to claim 30, when executed thereon.

64. A computer program comprising instructions to cause a computer to perform a method for soliciting a TB PPDU transmission in a WLAN according to any one of claim 1 to claim 15 or any one of claim 16 to claim 30, when executed thereon.

65. A non-volatile storage medium comprising computer program codes to cause a computer to perform a method for soliciting a TB PPDU transmission in a WLAN according to any one of claim 1 to claim 15 or any one of claim 16 to claim 30, when executed thereon.

66. A chip configured to perform a method for soliciting a TB PPDU transmission in a WLAN according to any one of claim 1 to claim 15 or any one of claim 16 to claim 30.