**SUMMARY**

[6] A non-limiting example facilitates providing communication apparatuses and communication methods for resource unit allocation signalling in context of EHT WLAN.

[7] In one aspect, the present disclosure provides a communication apparatus comprising circuitry configured to generate a physical layer protocol data unit (PPDU) comprising two signal field content channels in each 80 MHz frequency segment, each of the two signal field content channels comprising a plurality of resource unit (RU) allocation subfields; and a transmitter configured to transmit the generated PPDU, characterized in that a value of each of the plurality of RU allocation subfields is indicative of sizes of component RUs of a large-size RU combination, each of the component RUs of the large-size RU combination is equal to or larger than 242-tone RU, and the large-size RU combination is assigned to a single station or multiple stations in multiuser multiple-input multiple-output (MU MIMO) transmission, and for a PPDU bandwidth (BW) equal to or larger than 80 MHz frequency segment, frequency-domain positions of component RUs of the large-size RU combination depend on RU allocation subfield index indicating ordering or position of RU allocation subfield in content channel.

[8] In another aspect, the present disclosure provides a communication method comprising generating a PPDU comprising two signal field content channels in each 80 MHz frequency segment, each of the two signal field content channels comprising a plurality of RU allocation subfields; and transmitting the generated PPDU, characterized in that a value of each of the plurality of RU allocation subfields is able to indicate sizes of component RUs of a large-size RU combination, each of the component RUs of the large-size RU combination is

equal to or larger than 242-tone RU, and the large-size RU combination is assigned to a single station or multiple stations in multiuser multiple-input multiple-output (MU MIMO) transmission, and for a PPDU bandwidth (BW) equal to or larger than 80 MHz frequency segment, frequency-domain positions of component RUs of the large-size RU combination depend on RU allocation subfield index indicating ordering or position of RU allocation subfield in content channel.

[8a] In an example, the present disclosure provides a communication apparatus comprising a receiver, which, in operation, receives a physical layer protocol data unit (PPDU) comprising two signal field content channels in each 80 MHz frequency segment, each of the two signal field content channels comprising a plurality of resource unit (RU) allocation subfields, wherein a value of each of the plurality of RU allocation subfields is indicative of sizes of component RUs of a large-size RU combination; and a circuitry, which, in operation, decodes the PPDU.

[9] It should be noted that general or specific examples may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[10] Additional benefits and advantages of the examples in the disclosure will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various examples and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

**CLAIMS**

1. A communication apparatus, comprising:

circuitry configured to generate a physical layer protocol data unit (PPDU) comprising two signal field content channels in each 80 MHz frequency segment, each of the two signal field content channels comprising a plurality of resource unit (RU) allocation subfields; and

a transmitter configured to transmit the generated PPDU,

characterized in that

a value of each of the plurality of RU allocation subfields is indicative of sizes of component RUs of a large-size RU combination,

each of the component RUs of the large-size RU combination is equal to or larger than 242-tone RU, and the large-size RU combination is assigned to a single station or multiple stations in multiuser multiple-input multiple-output (MU MIMO) transmission, and

for a PPDU bandwidth (BW) equal to or larger than 80 MHz frequency segment, frequency-domain positions of component RUs of the large-size RU combination depend on RU allocation subfield index indicating ordering or position of RU allocation subfield in content channel.

2. The communication apparatus according to claim 1, wherein the frequency-domain position of the component RUs of the large-size RU combination is based on both of the value of each of the plurality of the RU allocation subfields and positions of each of the plurality of the RU allocation subfields in the two signal field content channels.

3. The communication apparatus according to claim 1, wherein for the PPDU BW equal to or larger than 80 MHz frequency segment, frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index and an extremely high throughput-signal (EHT-SIG) content channel (CC) index.

4. The communication apparatus according to claim 3, wherein the PPDU BW is equal to or larger than 80 MHz, and the large-size RU combination is a combination of one 484-tone RU and one 242-tone RU, the frequency-domain positions of components RUs of the large-size RU combination depend on the RU allocation subfield index and the EHT-SIG CC index.

5. The communication apparatus according to claim 3, wherein the PPDU BW is one of 160 MHz, 80+80 MHz, 320 MHz and 160+160 MHz, and the large-size RU combination is a combination of one 996-tone RU and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index; wherein the PPDU BW is one of 240 MHz and 160+80 MHz, and the large-size RU combination is a combination of one 996-tone RU and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index and the EHT-SIG CC index.

6. The communication apparatus according to claim 3, wherein the PPDU BW is one of 240 MHz, 160+80 MHz, 320 MHz and 160+160 MHz, and the large-size RU combination is a combination of two 996-tone RUs, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index.

7. The communication apparatus according to claim 3, wherein the PPDU BW is 320 MHz or 160+160 MHz, and the large-size RU combination is a combination of two 996-tone RUs and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index; wherein the PPDU BW is 240 MHz or 160+80 MHz, and the large-size RU combination is a combination of two 996-tone RUs and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index and the EHT-SIG CC index.

8. The communication apparatus according to claim 3, wherein the PPDU BW is 320 MHz or 160+160 MHz and the large-size RU combination is one of a combination of three 996-tone RUs or a combination of three 996-tone RUs and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index.

9. The communication apparatus according to claim 1, wherein a frequency position of the component RUs of the large-size RU combination is located within a defined 160 MHz segment.

10. A communication method comprising:

generating a physical layer protocol data unit (PPDU) comprising two signal field content channels in each 80 MHz frequency segment, each of the two signal field

content channels comprising a plurality of resource unit (RU) allocation subfields; and

transmitting the generated PPDU

characterized in that

a value of each of the plurality of RU allocation subfields is able to indicate sizes of component RUs of a large-size RU combination,

each of the component RUs of the large-size RU combination is equal to or larger than 242-tone RU, and the large-size RU combination is assigned to a single station or multiple stations in multiuser multiple-input multiple-output (MU MIMO) transmission, and

for a PPDU bandwidth (BW) equal to or larger than 80 MHz frequency segment, frequency-domain positions of component RUs of the large-size RU combination depend on RU allocation subfield index indicating ordering or position of RU allocation subfield in content channel.

11. The communication method according to claim 10, wherein the value of each of the plurality of RU allocation subfields is not able to indicate information on frequency-domain positions of the component RUs of the large-size RU combination.

12. The communication method according to claim 10, wherein for a PPDU bandwidth (BW) equal to or larger than 80 MHz, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index and an EHT-SIG content channel (CC) index.

13. The communication method according to claim 12, wherein the PPDU BW is equal to or larger than 80 MHz, and the large-size RU combination is a combination of one 484-tone RU and one 242-tone RU, the frequency-domain positions of components RUs of the large-size RU combination depend on the RU allocation subfield index and the EHT-SIG CC index.

14. The communication method according to claim 12, wherein the PPDU BW is one of 160 MHz, 80+80 MHz, 320 MHz and 160+160 MHz, and the large-size RU combination is a combination of one 996-tone RU and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index; wherein the PPDU BW is one of 240 MHz and 160+80 MHz, and the large-size RU combination is a combination of one 996-tone RU and one 484-tone RU, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index and the EHT-SIG CC index.

15. The communication method according to claim 12, wherein the PPDU BW is one of 240 MHz, 160+80 MHz, 320 MHz and 160+160 MHz, and the large-size RU combination is a combination of two 996-tone RUs, the frequency-domain positions of component RUs of the large-size RU combination depend on the RU allocation subfield index.