

WHAT IS CLAIMED IS:

1. A transmission device of a wireless local area network (WLAN) system, the transmission device comprising:

a transceiver configured to generate a physical layer convergence protocol (PLCP) protocol data unit (PPDU) including a preamble and a payload and to transmit the generated PPDU to at least one receiving device; and

a processor controlling the transceiver,

wherein the preamble comprises a plurality of training fields and a plurality of signaling fields,

wherein resource unit (RU) allocation information for the at least one receiving device is included in a common field of one of the plurality of signaling fields, and

wherein the RU allocation information comprises a first subfield indicating an arrangement of RUs and a number of subcarriers of each of the RUs in a frequency domain corresponding to the PPDU and a second subfield indicating whether at least one multiple RU is allocated, or which a part of the RUs is to be combined to form the at least one multiple RU among the RUs according to the arrangement and the number of subcarriers indicated by the first subfield.

2. The transmission device of claim 1, wherein the payload comprises a data field,

wherein at least one RU is arranged in the frequency domain of the data field based on the RU allocation information, and

wherein the RU comprises one single RU among a 26-subcarrier RU, a 52-subcarrier RU, a 106-subcarrier RU, a 242-subcarrier RU, a 484-subcarrier RU, and a 996-subcarrier RU or one multiple RU among a 26+52-subcarrier RU, a 52+26-subcarrier RU, a 26+106-subcarrier RU, a 106+26-subcarrier RU, a 484+242-subcarrier RU, and a 484+996-subcarrier RU.

3. The transmission device of claim 2, wherein, when the single RU is one of the 106-subcarrier RU, the 242-subcarrier RU, the 484-subcarrier RU, and the 996-subcarrier RU, up to 16 receiving devices are allocable for the single RU, and

wherein, when the single RU is one of the 26-subcarrier RU and the 52-subcarrier RU, one receiving device is allocable for the single RU.

4. The transmission device of claim 2 or claim 3, wherein, when the multiple RU is one of the 26+106-subcarrier RU, the 106+26-subcarrier RU, the 484+242-subcarrier RU, and the 484+996-subcarrier RU, up to 16 receiving devices are allocable for the multiple RU, and

wherein, when the multiple RU is one of the 26+52-subcarrier RU and the 52+26-subcarrier RU, one receiving device is allocable for the multiple RU.

5. The transmission device of claim 2, wherein the single RU or the multiple RU is allocable for the at least one receiving device.

6. The transmission device of any one of claims 2 to 5, wherein the first subfield consists of eight bits and the second subfield consists of two bits, and

wherein a combination of eight bits of the first subfield and two bits of the second subfield is able to indicate up to 16 as a maximum number of receiving devices that are allocable for the RU.

7. The transmission device of claim 6, wherein, when a part of a number of RU allocable cases in a specific index of the first subfield is not indicatable by a combination of eight bits of the first subfield and two bits of the second subfield, the non-indicatable part of the number of RU allocable cases is indicated by a combination of eight bits of an index indicated as reserved in the first subfield and two bits of the second subfield.

8. The transmission device of claim 6 or claim 7, wherein, when a number of RU allocable cases that is indicatable by a combination of eight bits of the first subfield and two bits of the second subfield is greater than the number of RU allocable cases in a specific index of the first subfield, a sub-index that needs not be indicated by two bits of the second subfield among sub-indexes in the specific index is indicated as reserved.

9. The transmission device of any one of claims 2 to 8, wherein the 52-subcarrier RU arranged at at least one end of both ends of the frequency domain is not

multiple combined with another RU.

10. The transmission device of any one of claims 2 to 9, wherein, in the single RU, the 26-subcarrier RU, the 52-subcarrier RU, and the 106-subcarrier RU are small-size RUs, and

wherein, in the single RU, the 242-subcarrier RU, the 484-subcarrier RU, and the 996-subcarrier RU are large-size RUs.

11. The transmission device of claim 10, wherein, in the multiple RU, the 26+52-subcarrier RU, the 52+26-subcarrier RU, the 26+106-subcarrier RU, and the 106+26-subcarrier RU are small-size multiple RUs, and

wherein, in the multiple RU, the 484+242-subcarrier RU and the 484+996-subcarrier RU are large-size multiple RUs.

12. The transmission device of claim 1, wherein a single RU or a multiple RU is allocable for the at least one receiving device.

13. The transmission device of claim 1, wherein the first subfield consists of eight bits and the second subfield consists of two bits, and

wherein a combination of eight bits of the first subfield and two bits of the second subfield is able to indicate up to 16 as a maximum number of receiving devices that are allocable for the RU.

14. The transmission device of claim 13, wherein, when a part of a number of RU allocable cases in a specific index of the first subfield is not indicatable by a combination of eight bits of the first subfield and two bits of the second subfield,

the non-indicatable part of the number of RU allocable cases is indicated by a combination of eight bits of an index indicated as reserved in the first subfield and two bits of the second subfield.

15. The transmission device of claim 13 or claim 14, wherein, when a number of RU allocable cases that is indicatable by a combination of eight bits of the first subfield and two bits of the second subfield is greater than the number of RU allocable cases in a

specific index of the first subfield,

a sub-index that needs not be indicated by two bits of the second subfield among sub-indexes in the specific index is indicated as reserved.

16. A receiving device of a wireless local area network (WLAN) system, the receiving device comprising:

a transceiver configured to receive a physical layer convergence protocol (PLCP) protocol data unit (PPDU) including a preamble and a payload and to decode the payload based on the preamble; and

a processor controlling the transceiver,

wherein the preamble comprises a plurality of training fields and a plurality of signaling fields,

wherein resource unit (RU) allocation information for the at least one receiving device is included in a common field of one of the plurality of signaling fields, and

wherein the RU allocation information comprises a first subfield indicating an arrangement of RUs and a number of subcarriers of each of the RUs in a frequency domain corresponding to the PPDU and a second subfield indicating whether at least one multiple RU is allocated, or which a part of the RUs is to be combined to form the at least one multiple RU among the RUs according to the arrangement and the number of subcarriers indicated by the first subfield.

17. The receiving device of claim 16, wherein the payload comprises a data field,

wherein at least one RU is arranged in the frequency domain of the data field based on the RU allocation information, and

wherein the RU comprises one single RU among a 26-subcarrier RU, a 52-subcarrier RU, a 106-subcarrier RU, a 242-subcarrier RU, a 484-subcarrier RU, and a 996-subcarrier RU or one multiple RU among a 26+52-subcarrier RU, a 52+26-subcarrier RU, a 26+106-subcarrier RU, a 106+26-subcarrier RU, a 484+242-subcarrier RU, and a 484+996-subcarrier RU.

18. The receiving device of claim 17, wherein, when the single RU is one of the 106-subcarrier RU, the 242-subcarrier RU, the 484-subcarrier RU, and the 996-

subcarrier RU, up to 16 receiving devices are allocable for the single RU, and

wherein, when the single RU is one of the 26-subcarrier RU and the 52-subcarrier RU, one receiving device is allocable for the single RU.

19. The receiving device of claim 17 or claim 18, wherein, when the multiple RU is one of the 26+106-subcarrier RU, the 106+26-subcarrier RU, the 484+242-subcarrier RU, and the 484+996-subcarrier RU, up to 16 receiving devices are allocable for the multiple RU, and

wherein, when the multiple RU is one of the 26+52-subcarrier RU and the 52+26-subcarrier RU, one receiving device is allocable for the multiple RU.

20. The receiving device of claim 17, wherein the single RU or the multiple RU is allocable for the receiving device.