

characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

SUMMARY

[6] Non-limiting and exemplary embodiments facilitate providing communication apparatuses and communication methods for transmissions over combinations of multiple resource units in context of EHT WLAN.

[7] In a first aspect, the present disclosure provides a communication apparatus comprising: ~~circuitry~~a receiver, which, in operation, ~~generates~~receives a physical layer protocol data unit (PPDU) comprising a signal field and a data field, the signal field comprising a resource unit (RU) allocation field and one or more user specific field and the data field comprising one or more physical layer service data unit (PSDU); and ~~a transmitter~~circuitry, which, in operation, ~~transmits~~decodes the ~~generated~~received PPDU, wherein a single PSDU of the one or more PSDU is transmitted over a RU combination, and whether two or more RUs of the RU combination share a single low density parity check (LDPC) tone mapper depends on the size of the two or more RUs of the RU combination.

[8] In a second aspect, the present disclosure provides a communication method comprising: ~~generating~~receiving a PPDU comprising a signal field and a data field, the signal field comprising a RU allocation field and one or more user specific field and the data field comprising one or more PSDU; and ~~transmitting~~decoding the ~~generated~~received PPDU, wherein a single PSDU of the one or more PSDU is transmitted over a RU combination, and whether the two or more RUs of the RU combination share a single LDPC tone mapper depends on the size of the two or more RUs of the RU combination.

[9] In ~~a third aspect~~one example, the present disclosure provides a communication apparatus comprising: a receiver, which, in operation, receives a PPDU comprising a signal field and a data field, the signal field comprising a RU allocation field and one or more user specific field and the data field comprising one or more PSDU; and circuitry, which, in operation, processes the received PPDU, wherein a single PSDU of the one or more PSDU is transmitted over a RU combination, and whether two or more RUs of the RU combination share a single

LDPC tone mapper depends on the size of the two or more RUs of the RU combination.

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

[11] Additional benefits and advantages of the examples disclosed ~~embodiments~~ will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various embodiments 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.

BRIEF DESCRIPTION OF THE DRAWINGS

[12] Embodiments of the disclosure will be better understood and readily apparent to one of ordinary skilled in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

[13] Fig. 1A depicts a schematic diagram of uplink and downlink single-user (SU) multiple input multiple output (MIMO) communication between an access point (AP) and a station (STA) in a MIMO wireless network.

[14] Fig. 1B depicts a schematic diagram of downlink multi-user (MU) communication between an AP and multiple STAs in a MIMO wireless network.

[15] Fig. 1C depicts a schematic diagram of trigger-based uplink MU communication between an AP and multiple STAs in a MIMO wireless network.

[16] Fig. 1D depicts a schematic diagram of trigger-based downlink multi-AP communication between multiple APs and a STA in a MIMO wireless network.

[17] Fig. 2A depicts an example format of a PPDU (physical layer protocol data unit) used for uplink and downlink SU communications between an AP and a STA in an HE WLAN.

[18] Fig. 2B depicts an example format of a PPDU used for downlink MU communications between an AP and multiples STAs in an HE WLAN.

[19] Fig. 2C depicts the HE-SIG-B field in more details.

CLAIMS

1. A communication apparatus comprising:
~~Circuitry~~a receiver, which, in operation, ~~generates~~receives a physical layer
5 protocol data unit (PPDU) comprising a signal field and a data field, the signal field
comprising a resource unit (RU) allocation field and one or more user specific field and
the data field comprising one or more physical layer service data unit (PSDU); and
~~a transmitter circuitry~~, which, in operation, ~~transmits~~decodes the
~~generated~~received PPDU, wherein a single PSDU of the one or more PSDU is
10 transmitted over a RU combination, and whether two or more RUs of the RU
combination share a single low density parity check (LDPC) tone mapper depends on
the size of the two or more RUs of the RU combination.

2. The communication apparatus of claim 1, wherein the two or more RUs of the
15 RU combination share a single LDPC tone mapper if the size of the two or more RUs
of the RU combination is not larger than a defined value.

3. The communication apparatus of claim 2, wherein the defined value is 996
20 tones.

4. The communication apparatus of claim 1, wherein same transmission
parameters are applied to the two or more RUs of the RU combination that share a
single LDPC tone mapper.

- 25 5. The communication apparatus of claim 4, wherein the same transmission
parameters comprise modulation and coding scheme.

6. The communication apparatus of claim 1, wherein the two or more RUs of the
RU combination that share a single LDPC tone mapper are indicated in the RU
30 allocation field.

7. The communication apparatus of claim 1, wherein the one or more user specific
field in the signal field includes user specific field corresponding to one of the two or
more RUs of the RU combination that share a single LDPC tone mapper; wherein the
35 one or more user specific field in the signal field does not include user
specific field corresponding to the remaining of the two or more RUs of the RU
combination that share the single LDPC tone mapper.

8. A communication method comprising:

~~generating~~receiving a physical layer protocol data unit (PPDU) comprising a signal field and a data field, the signal field comprising a resource unit (RU) allocation field and one or more user specific field and the data field comprising one or more physical layer service data unit (PSDU); and

~~transmitting~~decoding the ~~generated~~received PPDU, wherein a single PSDU of the one or more PSDU is transmitted over a RU combination, and whether the two or more RUs of the RU combination share a single low density parity check (LDPC) tone mapper depends on the size of the two or more RUs of the RU combination.

9. The communication method of claim 8, wherein the two or more RUs of the RU combination share a single LDPC tone mapper if the size of the two or more RUs of the RU combination is not larger than a defined value.

10. The communication apparatus of claim 9, wherein the defined value is 996 tones.

11. The communication method of claim 8, further comprising applying same transmission parameters to the two or more RUs of the RU combination that share a single LDPC tone mapper.

12. The communication method of claim 11, wherein the same transmission parameters comprise modulation and coding scheme.

13. The communication method of claim 8, wherein the two or more RUs of the RU combination that share a single LDPC tone mapper are indicated in the RU allocation field.

14. The communication method of claim 8, wherein the one or more user specific field includes user specific field corresponding to one of the two or more RUs of the RU combination that share a single LDPC tone mapper; wherein the one or more user specific field does not include user specific field corresponding to the remaining of the two or more RUs of the RU combination that share the single LDPC tone mapper.