Claims

1. A method comprising:

communicating, by a wireless communication device, a medium access control (MAC) frame comprising a MAC header, frame body and frame check sequence;

the MAC header comprising:

a high throughput (HT) control sub-field, the HT control sub-field containing a control ID value and control information;

wherein when the control ID value is set to a first value, the control information is extremely high throughput (EHT) link adaptation parameters for EHT communication for single user – multiple input multiple output (SU-MIMO);

wherein when the control ID value is set to a second value, the control information is EHT link adaptation parameters for EHT communication for multi-user – multiple input multiple output (MU-MIMO).

2. The method of claim 1, wherein the first value is one of 9,11,12,13,14 and the second value is a different one of 9,11,12,13,14.

3. The method of claim 1, wherein the first value is 2 and the second value is one of 9,11,12,13,14, wherein when the first value is 2, the method further comprises communicating an indication at a physical layer that the MAC frame is a frame of a next generation protocol of High Efficiency (HE) protocol.

4. A method comprising:

communicating, by a wireless communication device, a medium access control (MAC) frame comprising a MAC header, frame body and frame check sequence;

the MAC header comprising:

a high throughput (HT) control sub-field, the HT control sub-field containing a control ID value and control information;

wherein when the control ID value is set to a first value, the control information contains EHT link adaptation parameters for EHT communication, and the control information contains a single user/multiple user– multiple input multiple output (SU/MU-MIMO) indication of whether the control information is for single user– multiple input multiple output (SU-MIMO) or for multiple user– multiple input multiple output (MU-MIMO).

5. The method of claim 4, wherein:

the control information includes a bandwidth sub-field indicating a recommended bandwidth, and an resource unit (RU) allocation/(partial RU allocation, SU/MU-MIMO indication) subfield defined as follows:

when the recommended physical layer protocol data unit (PPDU) bandwidth is larger than 20MHz, an resource unit (RU) allocation/(partial RU allocation, SU/MU-MIMO indication) subfield containing only RU allocation;

when the recommended PPDU bandwidth equals 20MHz, an resource unit (RU) allocation/(partial RU allocation, SU/MU-MIMO indication) subfield containing a partial RU allocation and the SU/MU-MIMO indication.

6. The method of claim 4 or 5, wherein:

the control information includes an unsolicited modulation and coding scheme feedback (MFB) sub-field, a bandwidth sub-field indicating a recommended physical layer protocol data unit (PPDU) bandwidth, and a modulation and coding scheme Request Sequence Identifier (MSI)/(physical layer protocol data unit (PPDU) Format, Coding Type)/(PPDU Format, SU/MU-MIMO indication) subfield defined as follows:

when the unsolicited MFB sub-field is 0, MSI/(PPDU Format, Coding Type)/(PPDU Format, SU/MU-MIMO indication) containing MSI;

when the unsolicited MFB sub-field is 1 and the recommended PPDU bandwidth is 20 MHz, the MSI/(PPDU Format, Coding Type)/(PPDU Format, SU/MU-MIMO indication) containing PPDU format and coding type;

when the unsolicited MFB sub-field is 1 and the recommended PPDU bandwidth is > 20 MHz, the MSI/(PPDU Format, Coding Type)/(PPDU Format, SU/MU-MIMO indication) containing PPDU format and the SU/MU-MIMO indication.

7. The method of claim 4, 5, or 6, wherein the first value is one of 9,11,12,13,14.

8. The method of claim 4, 5, or 6, wherein the first value is 2, the method further comprising communicating an indication at a physical layer that the MAC frame is a frame of a next generation protocol of a High Efficiency (HE) protocol.

9. The method of any of claims 1 to 8, wherein communicating comprises transmitting by an access point (AP).

10. The method of any of claims 1 to 8, wherein communicating comprises receiving by an access point.

11. The method of any of claims 1 to 10, wherein communicating comprises transmitting by a non-access point (AP) station (STA).

12. The method of any of claims 1 to 10, wherein communicating comprises receiving by a non-AP station (STA).

13. The method of any of claims 1 to 10, wherein the HT control sub-field comprises a high efficiency (HE) variant HT control field, the HE variant HT control field including an A-control subfield, wherein the A-control subfield contains said control ID and said control information.

14. An access point comprising a processor and memory, the access point configured to execute a method according to any one of claims 1 to 3, and 9 to 13.

15. A non-access point, AP, station comprising a processor and memory, the non-AP station configured to execute a method according to any one of claims 4 to 13.

16. A computer-readable storage medium, wherein the computer-readable storage medium stores program instructions, and when the program instructions are run, the method according to any one of claims 1 to 13 is performed.