one receive circuit configured to receive a trigger frame from an access point (AP) indicating that the STA is a candidate for an upcoming uplink (UL) multi-user (MU) transmission opportunity, the trigger frame comprising a first index indicating an open-loop power control parameter and a second index indicating a power alignment parameter; at least one processor configured to determine a baseline transmit power based on one or more of the trigger frame, the first index, or the second index; and at least one transmit circuit configured to send a data transmission to the AP in one or more assigned resource units of the UL MU transmission opportunity using the baseline transmit power.

[0005] Embodiments also include: receiving, by a station (STA), a downlink (DL) data transmission from an access point (AP), wherein a header of the DL data transmission comprises a first index indicating an open-loop power control parameter and a second index indicating a power alignment parameter; determining, by the STA, a baseline transmit power based on one or more of the first index and the second index; and sending, by the STA, an uplink (UL) data transmission to the AP using the baseline transmit power.

[0005a] According to a first aspect, there is provided a method for use in a station (STA), the method comprising: receiving a trigger frame broadcast to a plurality of STAs, the trigger frame indicating one or more building blocks in an upcoming uplink (UL) multi-user (MU) transmission opportunity are available to one or more STAs of the plurality of STAs for data transmissions; receiving power control information in the trigger frame, the power control information comprising a transmit power that an access point (AP) used to transmit the trigger frame and a target receive signal power at the AP; measuring a received power of the trigger frame; calculating a downlink pathloss of the trigger frame based on the received transmit power of the trigger frame and the measured received power of the trigger frame; determining a baseline transmit power based on the downlink pathloss and the target receive signal power at the AP; and sending a data transmission in the one or more building blocks using the baseline transmit power.

[0005b] According to another aspect, there is provided a station (STA) comprising: at least one receive circuit configured to receive a trigger frame broadcast to a plurality of STAs, the trigger frame indicating one or more building blocks in an upcoming uplink (UL) multi-user (MU) transmission opportunity are available to one or more STAs in the plurality of STAs for data transmissions; the at least one receive circuit further configured to receive power control information in the trigger frame, the power control information comprising a transmit power that an access point (AP) used to transmit the trigger frame and a target receive signal power at the AP; the at least one receive circuit further configured to measure a received power of the trigger frame; at least one processor configured to calculate a downlink pathloss of the trigger frame based on the received transmit power of the trigger frame and the measured received power of the trigger frame; the at least one processor further configured to determine a baseline transmit power based on the downlink pathloss and the target receive signal power at the AP; and at least one transmit circuit configured to send a data transmission in the one or more building blocks using the baseline transmit power.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] A more detailed understanding may be had from the following description, given by way of example in conjunction with the accompanying drawings wherein:

[0007] FIG. 1A is a system diagram of an example communications system in which one or more disclosed embodiments may be implemented;

[0008] FIG. 1B is a system diagram of an example wireless transmit/receive unit (WTRU) that may be used within the communications system illustrated in FIG. 1A;

[0009] FIG. 1C is a system diagram of an example radio access network and an example core network that may be used within the communications system illustrated in FIG. 1A;

[0010] FIG. 2 illustrates a sub 1ghz (S1G) open-loop link margin index element as defined in IEEE 802.11ah;

CLAIMS

What is claimed is:

1. A method for use in a station (STA), the method comprising:

receiving a trigger frame broadcast to a plurality of STAs, the trigger frame indicating one or more building blocks in an upcoming uplink (UL) multi-user (MU) transmission opportunity are available to one or more STAs of the plurality of STAs for data transmissions;

receiving power control information in the trigger frame, the power control information comprising a transmit power that an access point (AP) used to transmit the trigger frame and a target receive signal power at the AP;

measuring a received power of the trigger frame;

calculating a downlink pathloss of the trigger frame based on the received transmit power of the trigger frame and the measured received power of the trigger frame;

determining a baseline transmit power based on the downlink pathloss and the target receive signal power at the AP; and

sending a data transmission in the one or more building blocks using the baseline transmit power.

2. The method of claim 1, further comprising:

adjusting the baseline transmit power based on the target receive signal power at the AP.

3. The method of claim 1, wherein the power control information further comprises a summation of transmit power and receiver sensitivity.

4. The method of claim 1, wherein the power control information further comprises a targeted link margin at the AP, wherein the targeted link margin is defined as a difference between an expected received transmission power at the AP and an AP receiver sensitivity.

5. A station (STA) comprising:

at least one receive circuit configured to receive a trigger frame broadcast to a plurality of STAs, the trigger frame indicating one or more building blocks in an upcoming uplink (UL) multi-user (MU) transmission opportunity are available to one or more STAs in the plurality of STAs for data transmissions;

the at least one receive circuit further configured to receive power control information in the trigger frame, the power control information comprising a transmit power that an access point (AP) used to transmit the trigger frame and a target receive signal power at the AP;

the at least one receive circuit further configured to measure a received power of the trigger frame;

at least one processor configured to calculate a downlink pathloss of the trigger frame based on the received transmit power of the trigger frame and the measured received power of the trigger frame;

the at least one processor further configured to determine a baseline transmit power based on the downlink pathloss and the target receive signal power at the AP; and

at least one transmit circuit configured to send a data transmission in the one or more building blocks using the baseline transmit power.

6. The STA of claim 5, further comprising:

the at least one transmit circuit further configured to adjust the baseline transmit power based on the target receive signal power at the AP.

7. The STA of claim 5, wherein the power control information further comprises a summation of transmit power and receiver sensitivity.

8. The STA of claim 5, wherein the power control information further comprises a targeted link margin at the AP, wherein the targeted link margin is defined as a difference between an expected received transmission power at the AP and an AP receiver sensitivity.