

CLAIMS

What is claimed is:

1. A multi-link communication method, comprising:

5 sending, by a station in a station multi-link device, an information frame on a link corresponding to the station, wherein the information frame is used to indicate one or more stations to which the station multi-link device is to switch for sending the data in an awake state in the station multi-link device; and

10 receiving, by a part of or all of the one or more stations in the awake state in the station multi-link device, a downlink message frame sent by an access point multi-link device, on one or more links corresponding to the part of or all of the one or more stations, ~~a downlink message frame sent by an access point multi-link device~~.

2. A multi-link communication method, comprising:

15 receiving, by an access point multi-link device, an information frame on a link corresponding to a station in a station multi-link device, wherein the information frame is used to indicate one or more stations to which the station multi-link device is to switch for sending the data in an awake state in a station multi-link device; and

sending, by the access point multi-link device, a downlink message frame on one or more links corresponding to a part of or all of the one or more stations to which the station multi-link device is to switch for sending the data in the awake state in the station multi-link device.

20 ~~3. The method according to claim 1 or 2, wherein the information frame does not indicate whether the station in the awake state has an uplink service or a downlink service.~~

~~4. The method according to claim 1 or 2, wherein the information frame can further carry an uplink/downlink indication field, and the uplink/downlink indication field is used to indicate whether the station in the awake state has an uplink service or a downlink service.~~

25 ~~5. The method according to any one of claims 1 to 4, wherein the information frame is a PS-Poll frame or a QoS null data frame.~~

~~6. The method according to claim 1 or 2, wherein the downlink message frame comprises a downlink service.~~

30 ~~7. The method according to claim 1 or 2, wherein the downlink message frame comprises a synchronization frame, and the synchronization frame is used to assist the one or more stations to~~

which the station multi-link device is to switch for sending the data, station in the awake state in for sending an uplink service.

84. The method according to claim 73, wherein the synchronization frame is a trigger frame, a data frame (comprising a QoS null frame), a CTS (clear to send) frame, a CTS to self frame, an RTS (Request To Send) frame, or a CF-End frame.

5 5. The method according to anyone of claims 1 to 4, the station in a station multi-link device and the one or more stations to which the station multi-link device is to switch for sending the data, do not support simultaneous ~~sending~~ transmitting and receiving.

6. The method according to anyone of claims 1 to 5, the one or more stations to which the station multi-link device is to switch for sending the data loses the channel state information.

7. The method according to anyone of claims 1 to 6, the station multi-link device is a single radio station.

98. A station multi-link device, comprising one or more stations, wherein a station in the station multi-link device sends an information frame on a link corresponding to the station, wherein the information frame is used to indicate one or more stations to which the station multi-link device is to switch for sending the data~~in an awake state in the station multi-link device~~; and

a part of or all of the one or more stations in the awake state in the station multi-link device receive, a downlink message frame sent by an access point multi-link device, on one or more links corresponding to the part of or all of the one or more stations, ~~a downlink message frame sent by an access point multi-link device~~.

109. An access point multi-link device, comprising one or more access points, wherein an access point in the access point multi-link device receives an information frame on a link corresponding to the access point, wherein the information frame is used to indicate one or more stations to which the station multi-link device is to switch for sending the data~~in an awake state in a station multi-link device~~; and

the access point multi-link device sends a downlink message frame on one or more links corresponding to a part of or all of the one or more stations to which the station multi-link device is to switch for sending the data~~in the awake state in the station multi-link device~~.

11. The multi-link device according to claim 9 or 10, wherein the information frame does not

indicate whether the station in the awake state has an uplink service or a downlink service.

~~12. The multi-link device according to claim 9 or 10, wherein the information frame can further carry an uplink/downlink indication field, and the uplink/downlink indication field is used to indicate whether the station in the awake state has an uplink service or a downlink service.~~

~~13. The multi-link device according to any one of claims 9 to 12, wherein the information frame is a PS Poll frame or a QoS null data frame.~~

~~14. The multi-link device according to claim 9 or 10, wherein the downlink message frame comprises a downlink service.~~

~~1510. The multi-link device according to claim 9-8 or 109, wherein the downlink message frame comprises a synchronization frame, and the synchronization frame is used to assist one or more stations to which the station multi-link device is to switch for sending the data, the station in the awake state in for sending an uplink service.~~

~~1611. The multi-link device according to claim 1510, wherein the synchronization frame is a trigger frame, a data frame (comprising a QoS null frame), a CTS (clear to send) frame, a CTS to self frame, an RTS (Request To Send) frame, or a CF End frame.~~

~~12. The multi-link device according to anyone of claims 8 to 11, the station in a station multi-link device and the one or more stations to which the station multi-link device is to switch for sending the data, do not support simultaneous transmitting and receiving.~~

~~13. The multi-link device according to anyone of claims 8 to 12, the one or more stations to which the station multi-link device is to switch for sending the data loses the channel state information.~~

~~14. The multi-link device according to anyone of claims 8 to 13, the station multi-link device is a single radio station.~~

~~1715. A computer-readable storage medium, configured to store a computer program, wherein the computer program comprises instructions used to perform the method according to any-one of claims 1 to 87.~~

~~1816. A computer program, wherein the computer program comprises instructions used for the method according to any-one of claims 1 to 87.~~