## CLAIMS

What is claimed is:

1. A multi-link communication method, wherein the method comprises:

sending, by a first station, an association request frame to a second station, wherein the first station is one of multiple stations comprised in a first multi-link device, the second station is one of multiple stations comprised in a second multi-link device, wherein the multiple stations comprised in the first multi-link device work on multiple links, and the multiple links comprise a first link on which the first station works, and wherein the association request frame comprises request information of the first link and a second link, and the request information of the second link is comprised in a multi-link element; and

receiving, on the first link by the first station, an association response frame.

2. A multi-link communication method, wherein the method comprises:

receiving, on a first link by a second station, an association request frame sent by a first station, wherein the first station is one of multiple stations comprised in a first multi-link device, the second station is one of multiple stations comprised in a second multi-link device, the multiple stations comprised in the second multi-link device work on multiple links, the multiple links comprise the first link on which the second station works, the association request frame comprises request information of the first link and a second link, and the request information of the second link is comprised in a multi-link element; and

sending, on the first link by the second station, an association response frame.

3. The method according to claim 1 or 2, wherein the request information of the second link comprises an index of the second link, an address of a station corresponding to the second link in the first multi-link device.

4. The method according to any one of claims 1 to 3, wherein the request information of the first link comprises common information corresponding to the first link and the second link.

5. The method according to claim 4, wherein the request information of the first link and the second link further comprise respective unique information of an information element corresponding to the first link and an information element corresponding to the second link.

6. The method according to any one of claims 1 to 5, wherein the association response frame

comprises the response information of the first link and the second link.

7. The method according to claim 6, wherein the response information of the second link comprises an index of the second link, and an identifier of the station corresponding to the second link in the second multi-link device.

8. The method according to claim 6 or 7, wherein the response information of the second link comprises a listen interval field, and the listen interval is used to indicate a time interval at which the first station receives beacons.

9. A first multi-link communication apparatus, wherein the apparatus comprises:

a sending module, configured to send, on a first link via a first station, an association request frame to a second station, wherein the first station is one of multiple stations comprised in a first multi-link device, the second station is one of multiple stations comprised in a second multi-link device, wherein the multiple stations comprised in the first multi-link device work on multiple links, and the multiple links comprise a first link on which the first station works; and wherein the association request frame comprises request information of the first link and a second link, and the request information of the second link is comprised in a multi-link element;

a receiving module, configured to receive, on the first link via the first station, an association response.

10. A second multi-link communication apparatus, wherein the apparatus comprises:

a receiving module, configured to receive, on a first link via a second station, an association request sent by a first station, wherein the first station is one of multiple stations comprised in a first multi-link device, the second station is one of multiple stations comprised in a second multi-link device, the multiple stations comprised in the second multi-link device work on multiple links, and the multiple links comprise the first link on which the second station works, and wherein the association request frame comprises request information of the first link and a second link, and the request information of the second link is comprised in a multi-link element; and

a sending module, configured to send, an association response frame.

11. The communication apparatus according to claim 9 or 10, wherein the request information of the second link comprises an index of the second link, an address of a station corresponding to the second link in the first multi-link device.

12. The communication apparatus according to any one of claims 9 to 11, wherein the request

information of the first link comprises common information of an information element corresponding to the first link and an information element corresponding to the second link.

13. The communication apparatus according to claim 12, wherein the request information of the first link and the second link further comprise respective unique information of an information element corresponding to the first link and an information element corresponding to the second link.

14. The communication apparatus according to any one of claims 9 to 13, wherein the association response frame comprises the response information of the first link and the second link.

15. The communication apparatus according to claim 14, wherein the response information of the second link comprises an index of the second link, and an identifier of the station corresponding to the second link in the second multi-link device.

16. An apparatus, comprising a processor and a memory, wherein the memory is configured to store instructions; and when the instructions are run by the processor, the apparatus is enabled to perform the method according to any one of claims 1 to 8.

17. A computer program product comprising instructions, wherein when the computer program product runs on a computer, the computer is enabled to perform the method according to any one of claims 1 to 8.

18. A computer-readable storage medium, wherein the computer-readable storage medium comprises instructions used to implement the method according to any one of claims 1 to 8.

19. An apparatus, wherein the apparatus is configured to implement the method according to any one of claims 1 to 8.

20. A chip, comprising an input interface, an output interface, and a processing circuit, wherein the input interface, the output interface, and the processing circuit are connected to each other through an internal connection path; and the processing circuit is configured to perform the method according to any one of claims 1 to 8.