

CLAIMS

1. An operating method for enhanced multi-link single radio (EMLSR), comprising:

determining, by a first station, a duration time, wherein the duration time at least covers a first duration where the first station has lost a medium synchronization, wherein the first station is affiliated with a multi-link device (MLD) operating in an EMLSR mode, and the first station operates on a first EMLSR link among a plurality of EMLSR links of the MLD; and

determining, by the first station, whether to start a medium synchronization delay timer based on the duration time or whether to update a time value of the medium synchronization delay timer based on a previous medium synchronization delay timer.

2. The method according to claim 1, wherein the first duration where the first station has lost the medium synchronization at least covers a second duration from the MLD switching from a listening operation to a frame exchange operation to the MLD switching back to the listening operation from the frame exchange operation.

3. The method according to claim 2, wherein the second station performs a frame exchange during the MLD is in the frame exchange operation, and the second station is affiliated with the MLD, and the frame exchange is performed on a second EMLSR link where the second station operates on.

4. The method according to claim 2, wherein the MLD is a non-access point (non-AP) MLD.

5. The method according to claim 1, wherein the first duration where the first station has lost the medium synchronization at least covers a third duration between a first event and a second event, wherein the first event is where the MLD switches from a listening operation to a frame exchange operation, and the second event is where the MLD switches back to the listening operation from the frame exchange operation.

6. The method according to claim 3, wherein the first station and the second station respectively communicate with a first AP station and a second AP station in an AP MLD via the first EMLSR link and the second EMLSR link.

7. The method according to claim 6, comprising:

when determining that the MLD is performing the listening operation, determining, by the first station, whether the first station loses the medium synchronization due to the frame exchange started between the second station and the second AP station;

when determining that the first station loses the medium synchronization, determining, by the first station, that the MLD switches from the listening operation to the frame exchange operation.

8. The method according to claim 7, wherein the first duration is a sum of a duration from the MLD switching from the listening operation to the frame exchange operation to the end of the frame exchange and a transition delay of the MLD.

9. The method according to claim 1, wherein the step of determining, by the first station, whether to start the medium synchronization delay timer based on the duration time or whether to update the time value of the medium synchronization delay timer based on the previous medium synchronization delay timer comprises:

when determining that the duration time exceeds a medium synchronization threshold, starting, by the first station, the medium synchronization delay timer; or

when determining that the previous medium synchronization delay timer is not expired, updating, by the first station, the time value of the medium synchronization delay timer.

10. The method according to claim 1, wherein the MLD is a non-AP MLD, and the step of determining, by the first station, whether to start the medium synchronization delay timer based on the duration time comprises:

when determining that the duration time of the first station losing the medium synchronization is longer than a medium synchronization threshold, starting, by the first station, the medium synchronization delay timer immediately after the non-AP MLD returning to a listening operation.

11. A communication apparatus, characterized by comprising:

a determining module, configured for:

determining a duration time, wherein the duration time at least covers a first duration where the first station has lost a medium synchronization, wherein the first station is affiliated with a multi-link device (MLD) operating in an EMLSR mode, and the first station operates on a first enhanced multi-link single radio (EMLSR) link among a plurality of EMLSR links of the MLD; and

determining whether to start a medium synchronization delay timer based on the duration time or whether to update a time value of the medium synchronization delay timer based on a previous medium synchronization delay timer.

12. The communication apparatus according to claim 11, wherein the first duration where the first station has lost the medium synchronization at least covers a second duration from the MLD switching from a listening operation to a frame exchange operation to the MLD switching back to the listening operation from the frame exchange operation.

13. The communication apparatus according to claim 12, wherein the second station performs a frame exchange during the MLD is in the frame exchange operation, and the second

station is affiliated with the MLD, and the frame exchange is performed on a second EMLSR link where the second station operates on.

14. The communication apparatus according to claim 12, wherein the MLD is a non-access point (non-AP) MLD.

15. The communication apparatus according to claim 11, wherein the first duration where the first station has lost the medium synchronization at least covers a third duration between a first event and a second event, wherein the first event is where the MLD switches from a listening operation to a frame exchange operation, and the second event is where the MLD switches back to the listening operation from the frame exchange operation.

16. The communication apparatus according to claim 13, wherein the first station and the second station respectively communicate with a first AP station and a second AP station in an AP MLD via the first EMLSR link and the second EMLSR link.

17. The communication apparatus according to claim 16, wherein the determining module is configured for:

when determining that the MLD is performing the listening operation, determining whether the first station loses the medium synchronization due to the frame exchange started between the second station and the second AP station;

when determining that the first station loses the medium synchronization, determining that the MLD switches from the listening operation to the frame exchange operation.

18. The communication apparatus according to claim 17, wherein the first duration is a sum of a duration from the MLD switching from the listening operation to the frame exchange operation to the end of the frame exchange and a transition delay of the MLD.

19. The communication apparatus according to claim 11, wherein in determining whether to start the medium synchronization delay timer based on the duration time or whether to update the time value of the medium synchronization delay timer based on the previous medium synchronization delay timer, the determining module is configured for:

when determining that the duration time exceeds a medium synchronization threshold, starting the medium synchronization delay timer; or

when determining that the previous medium synchronization delay timer is not expired, updating the time value of the medium synchronization delay timer.

20. The communication apparatus according to claim 11, wherein the MLD is a non-AP MLD, and in determining, by the first station, whether to start the medium synchronization delay timer based on the duration time, the determining module is configured for:

5 when determining that the duration time of the first station losing the medium synchronization is longer than a medium synchronization threshold, starting the medium synchronization delay timer immediately after the non-AP MLD returning to a listening operation.

21. A chip, comprising: a determining module, configured for:

10 determining a duration time, wherein the duration time at least covers a first duration where a first station installed with the chip has lost a medium synchronization, wherein the first station is affiliated with an multi-link device (MLD) operating in an EMLSR mode, and the first station operates on a first EMLSR link among a plurality of EMLSR links of the MLD; and

15 determining whether to start a medium synchronization delay timer based on the duration time or whether to update a time value of the medium synchronization delay timer based on a previous medium synchronization delay timer.