

CLAIMS

What is claimed is:

1. A method for determining a backoff value at a wireless station, comprising:

receiving a traffic indication map at the station, wherein a backoff number is implicitly assigned to the station based on a position of the station within the traffic indication map; and

determining the backoff value by multiplying the backoff number by a predetermined time value.

2. The method according to claim 1, wherein the predetermined time value is a fixed value.

3. The method according to claim 1, wherein the predetermined time value is received at the station via any one of: a beacon, a probe response frame, an association response frame, a management frame, or a control frame.

4. The method according to claim 1, further comprising:
setting a backoff timer at the station with the determined backoff value;
and
attempting to send a communication by the station after the backoff timer has expired.

5. A wireless station, comprising:
a transceiver configured to receive a traffic indication map, wherein a backoff number is implicitly assigned to the station based on a position of the station within the traffic indication map; and
a processor in communication with the transceiver, the processor configured to determine a backoff value for the station by multiplying the backoff number by a predetermined time value.

6. The wireless station according to claim 5, wherein the predetermined time value is a fixed value.

7. The wireless station according to claim 5, wherein the transceiver is configured to receive the predetermined time value via any one of: a beacon, a short beacon, a probe response frame, an association response frame, a Fast Initial Link Setup discovery frame, a management frame, or a control frame.

8. The wireless station according to claim 5, further comprising:
a backoff timer in communication with the processor, the backoff timer being set to the determined backoff value, wherein the transceiver attempts to send a communication after the backoff timer has expired.

9. A method for assigning a backoff value to a wireless station, comprising:

sending a traffic indication map to the station, wherein a backoff number is implicitly assigned to the station based on a position of the station within the traffic indication map; and

determining the backoff value by multiplying the backoff number by a predetermined time value.

10. The method according to claim 9, wherein the predetermined time value is a fixed value.

11. The method according to claim 9, wherein the predetermined time value is sent to the station via any one of: a beacon, a short beacon, a probe response frame, an association response frame, a Fast Initial Link Setup discovery frame, a management frame, or a control frame.

12. The method according to claim 9, further comprising:
receiving a communication from the station after the determined backoff value has elapsed.

13. A method for receiving a backoff value at a wireless station, comprising:

receiving a traffic indication map at the station; and

on a condition that the traffic indication map (TIM) contains a positive traffic indication for the station, using a hash function with a predetermined set of parameters to determine the backoff value for the station.

14. The method according to claim 13, wherein the predetermined set of parameters includes an association identifier of the station and a bitmap position of the station within the TIM or an i^{th} positive indication in the TIM.

15. The method according to claim 14, wherein the predetermined set of parameters further includes any one or more of:

a basic service set identifier of a basic service set that transmitted the traffic indication map;

a medium access control address of an access point that transmitted the traffic indication map;

a timing synchronization function value of an access point with which the station is associated;

a neighbor access point timing synchronization function offset, with respect to the timing synchronization function of the access point with which the station is associated;

a slot time; or

a total number of positive traffic indication map indications of a basic service set or an overlapping basic service set.

16. The method according to claim 13, further comprising:

setting a backoff timer at the station with the determined backoff value;

and

attempting to send a communication by the station after the backoff timer has expired.

17. A wireless station, comprising:
a transceiver configured to receive a traffic indication map (TIM); and
a processor in communication with the transceiver, the processor configured to use a hash function with a predetermined set of parameters to determine a backoff value for the station on a condition that the TIM contains a positive traffic indication for the station.

18. The wireless station according to claim 17, wherein the predetermined set of parameters includes an association identifier of the station and a bitmap position of the station within the TIM.

19. The wireless station according to claim 18, wherein the predetermined set of parameters further includes any one or more of:

a basic service set identifier of a basic service set that transmitted the traffic indication map;

a medium access control address of an access point that transmitted the traffic indication map;

a timing synchronization function value of an access point with which the station is associated;

a neighbor access point timing synchronization function offset, with respect to the timing synchronization function of the access point with which the station is associated;

a slot time; or

a total number of positive traffic indication map indications of a basic service set or an overlapping basic service set.

20. The wireless station according to claim 17, further comprising:
a backoff timer in communication with the processor, the backoff timer being set to the determined backoff value, wherein the transceiver attempts to send a communication after the backoff timer has expired.

21. A method for assigning a backoff value to a wireless station, comprising:

sending a traffic indication map (TIM) to the station; and

on a condition that the TIM contains a positive traffic indication for the station, using a hash function with a predetermined set of parameters to determine the backoff value for the station.

22. The method according to claim 21, wherein the predetermined set of parameters includes an association identifier of the station and a bitmap position of the station within the TIM or an i^{th} positive indication in the TIM.

23. The method according to claim 22, wherein the predetermined set of parameters further includes any one or more of:

a basic service set identifier of a basic service set that transmitted the traffic indication map;

a medium access control address of an access point that transmitted the traffic indication map;

a timing synchronization function value of an access point with which the station is associated;

a neighbor access point timing synchronization function offset, with respect to the timing synchronization function of the access point with which the station is associated;

a slot time; or

a total number of positive traffic indication map indications of a basic service set or an overlapping basic service set.

24. The method according to claim 21, further comprising:

receiving a communication from the station after the determined backoff value has elapsed.

Claims

1. A method to provide access to a medium, the method comprising:
receiving a traffic indication map at a wireless station, wherein a backoff number is implicitly assigned to the wireless station as a function of a position of the wireless station within the traffic indication map; and
determining a medium access backoff value by multiplying the backoff number by a time value.
2. The method of claim 1, wherein the time value is a fixed value.
3. The method of claim 1, wherein the time value is received at the wireless station via one of a beacon, a short beacon, a probe response frame, an association response frame, a Fast Initial Link Setup discovery frame, a management frame, or a control frame.
4. The method of claim 1, further comprising:
setting a backoff timer at the wireless station with the medium access backoff value; and
attempting to send a communication by the wireless station after the backoff timer has expired.
5. The method of claim 1, wherein the medium access backoff value is a slot time.
6. The method of claim 1, wherein the medium access backoff value is determined using a hash function with a predetermined set of parameters.
7. The method of claim 6, wherein the predetermined set of parameters comprises at least one of the position of the wireless station within the traffic indication map, a basic service set ID (BSSID), an association identifier (AID), or a TSF value.
8. The method of claim 1, further comprising signaling the medium access backoff value using at least one of a beacon or a short beacon.

9. A wireless station comprising:
- a transceiver configured to receive a traffic indication map, wherein a backoff number is implicitly assigned to the wireless station as a function of a position of the wireless station within the traffic indication map; and
 - a processor in communication with the transceiver, the processor configured to determine a medium access backoff value for the wireless station by multiplying the backoff number by a time value.
10. The wireless station of claim 9, wherein the time value is a fixed value.
11. The wireless station of claim 9, wherein the wireless station receives the time value via one of a beacon, a short beacon, a probe response frame, an association response frame, a Fast Initial Link Setup discovery frame, a management frame, or a control frame.
12. The wireless station of claim 11, further comprising a backoff timer in communication with the processor, the backoff timer being set to the medium access backoff value, wherein the transceiver attempts to send a communication after the backoff timer has expired.
13. The wireless station of claim 9, wherein the medium access backoff value is a slot time.
14. The wireless station of claim 9, wherein the medium access backoff value is determined using a hash function with a predetermined set of parameters.
15. The wireless station of claim 14, wherein the predetermined set of parameters comprises at least one of the position of the wireless station within the traffic indication map, a basic service set ID (BSSID), an association identifier (AID), or a TSF value.
16. The wireless station of claim 9, wherein the transceiver is configured to signal the medium access backoff value using at least one of a beacon or a short beacon.

17. A method for assigning a medium access backoff value to a wireless station, the method comprising:

sending a traffic indication map to the wireless station, wherein a backoff number is implicitly assigned to the wireless station as a function of a position of the wireless station within the traffic indication map; and

determining the medium access backoff value by multiplying the backoff number by a time value.

18. The method of claim 17, wherein the time value is a fixed value.

19. The method of claim 17, further comprising sending the time value to the wireless station via one of a beacon, a short beacon, a probe response frame, an association response frame, a Fast Initial Link Setup discovery frame, a management frame, or a control frame.

20. The method of claim 17, wherein the medium access backoff value is a slot time.

21. The method of claim 17, wherein the medium access backoff value is determined using a hash function with a predetermined set of parameters.

22. The method of claim 21, wherein the predetermined set of parameters comprises at least one of the position of the wireless station within the traffic indication map, a basic service set ID (BSSID), an association identifier (AID), or a TSF value.

23. The method of claim 17, further comprising signaling the backoff value using at least one of a beacon or a short beacon.

24. A device comprising:

a transceiver configured to send a traffic indication map to a wireless station, wherein a backoff number is implicitly assigned to the wireless station as a function of a position of the wireless station within the traffic indication map; and

a processor in communication with the transceiver, the processor configured to determine a medium access backoff value by multiplying the backoff number by a time value.

25. The device of claim 24, wherein the time value is a fixed value.

26. The device of claim 24, wherein the transceiver is configured to send the time value to the wireless station via one of a beacon, a short beacon, a probe response frame, an association response frame, a Fast Initial Link Setup discovery frame, a management frame, or a control frame.

27. The device of claim 24, wherein the medium access backoff value is a slot time.

28. The device of claim 24, wherein the medium access backoff value is determined using a hash function with a predetermined set of parameters.

29. The device of claim 28, wherein the predetermined set of parameters comprises at least one of the position of the wireless station within the traffic indication map, a basic service set ID (BSSID), an association identifier (AID), or a TSF value.

30. The device of claim 24, wherein the transceiver is configured to signal the medium access backoff value using at least one of a beacon or a short beacon.