

CLAIMS

1. A wireless communication method in a wireless network comprising an access point and a plurality of nodes, the method comprising, at the access point,
5 the step of sending a trigger frame to the nodes, the trigger frame reserving at least one communication channel of the wireless network for a transmission opportunity and defining a plurality of resource units splitting the communication channel in the frequency domain,

wherein the trigger frame includes one indicator per resource unit, each
10 indicator restricting data to be sent on the respective resource unit to data having a restricted traffic type of data.

2. A wireless communication method in a wireless network comprising an access point and a plurality of nodes, the method comprising, at one of said nodes:

receiving a trigger frame from the access point, the trigger frame reserving
15 at least one communication channel of the wireless network for a transmission opportunity and defining a plurality of resource units splitting the communication channel in the frequency domain, wherein the trigger frame includes one indicator per resource unit, each indicator restricting data to be sent on the respective resource unit to data having a restricted traffic type of data;

20 determining, from the trigger frame, an indicator defining a restricted traffic type of data authorized for at least one of the resource units;

determining, from local transmitting memory, data having a traffic type corresponding to the determined restricted traffic type of data; and

transmitting the determined data to the access point on the said resource
25 unit.

3. The wireless communication method of Claim 1 or 2, wherein the restricted traffic type of data is one of the four access categories defined in the 802.11 standard, namely AC_BK for background data, AC_BE for best-effort data, AC_VI for video applications and AC_VO for voice applications.

30 4. The wireless communication method of Claim 2, wherein determining, from local transmitting memory, data having a traffic type corresponding to the determined restricted traffic type of data includes selecting data in a transmitting queue storing data having only the determined restricted traffic type of data.

5. The wireless communication method of Claim 2, wherein the node's local transmitting memory includes a plurality of transmitting queues, each being associated with a dynamic priority value and with a traffic type, and the method further comprises:

- 5 successively considering the transmitting queue according to an highest-to-lowest priority value order, until data is sent on a resource unit,
 and for each transmitting queue successively considered, determining whether a resource unit in the communication channel has the restricted traffic type, and in case of positive determination, transmitting data from the transmitting queue
 10 currently considered on the determined resource unit.

6. The wireless communication method of Claim 1, further comprising determining a frequency of sending a trigger frame having a restricted traffic type indicator, based on network statistics on one or more previous transmission opportunities.

- 15 7. The wireless communication method of Claim 1, further comprising determining the number of resource units forming the communication channel, based on network statistics on one or more previous transmission opportunities.

8. The wireless communication method of Claim 6 or 7, wherein the network statistics include one or more from:

- 20 a number of nodes registered to the access point in the wireless network,
 a number of collisions or a collision ratio occurring during the one or more previous transmission opportunities,
 a distribution of packet sizes received by the access point, in particular a packet size distribution relative to a maximum packet size,
 25 an amount of data transmitted by the nodes,
 an amount of data transmitted by the nodes for each traffic type from among a plurality of predefined traffic types,
 a ratio of medium busyness, for instance the ratio of a medium busy time on a given period (e.g. one second).

- 30 9. The wireless communication method of Claim 1 or 2, wherein the trigger frame defines various restricted types of data for various respective resource units.

10. A wireless communication method in a wireless network comprising an access point and a plurality of nodes, the method comprising, at the access point, the step of:

5 sending a trigger frame to the nodes, the trigger frame reserving at least one communication channel of the wireless network for a transmission opportunity and defining a plurality of resource units splitting the communication channel in the frequency domain, the plurality of resource units having the same time length in the same time domain;

10 wherein resource units within the communication channel have different frequency widths.

11. A wireless communication method in a wireless network comprising an access point and a plurality of nodes, the method comprising, at one of said nodes, the steps of:

15 receiving a trigger frame from the access point, the trigger frame reserving at least one communication channel of the wireless network for a transmission opportunity and a plurality of resource units splitting the communication channel in the frequency domain, the plurality of resource units having the same time length in the time domain, and

20 transmitting data to the access point on one of the resource units, wherein resource units within the communication channel have different frequency widths.

12. The wireless communication method of Claim 10 or 11, wherein each resource unit is associated with a traffic type of data selected from the four access categories defined in the 802.11 standard, namely AC_BK for background data, AC_BE for best-effort data, AC_VI for video applications and AC_VO for voice applications.

13. The wireless communication method of Claim 12, wherein resources units associated with AC_BK and AC_BE traffic types have a frequency width equal to a minimal frequency width authorized by the 802.11 standard.

30 **14.** The wireless communication method of Claim 11, wherein each resource unit is associated with a traffic type of data, and the method further comprises, at the node:

transmitting, on one resource unit, data having the same traffic type as the traffic type associated with the resource unit.

15 **15.** The wireless communication method of Claim 10, wherein each resource unit is associated with a traffic type of data, and the method further comprises:

 determining the frequency widths of the resource units based on statistics on data related to each traffic type as received in one or more previous transmission opportunities.

10 **16.** The wireless communication method of Claim 10, further comprising determining the number of resource units forming the communication channel, based on network statistics on one or more previous transmission opportunities.

15 **17.** A communication device acting as an access point in a wireless network also comprising a plurality of nodes, the communication device acting as an access point comprising at least one microprocessor configured for carrying out the step of sending a trigger frame to the nodes, the trigger frame reserving at least one communication channel of the wireless network for a transmission opportunity and defining a plurality of resource units splitting the communication channel in the frequency domain,

20 wherein the trigger frame includes one indicator per resource unit, each indicator restricting data to be sent on the respective resource unit to data having a restricted traffic type of data.

18. A communication device in a wireless network comprising an access point and a plurality of nodes, the communication device being one of the nodes and comprising at least one microprocessor configured for carrying out the steps of:

25 receiving a trigger frame from the access point, the trigger frame reserving at least one communication channel of the wireless network for a transmission opportunity and defining a plurality of resource units splitting the communication channel in the frequency domain, wherein the trigger frame includes one indicator per resource unit, each indicator restricting data to be sent on the respective resource unit to data having a restricted traffic type of data;

30 determining, from the trigger frame, an indicator defining a restricted traffic type of data authorized for at least one of the resource units;

determining, from local transmitting memory, data having a traffic type corresponding to the determined restricted traffic type of data; and

transmitting the determined data to the access point on the said resource unit.

5 **19.** A communication device acting as an access point in a wireless network also comprising a plurality of nodes, the communication device acting as an access point comprising at least one microprocessor configured for carrying out the step of sending a trigger frame to the nodes, the trigger frame reserving at least one communication channel of the wireless network for a transmission opportunity and
10 defining a plurality of resource units splitting the communication channel in the frequency domain, the plurality of resource units having the same time length in the time domain;

wherein resource units within the communication channel have different frequency widths.

15 **20.** A communication device in a wireless network comprising an access point and a plurality of nodes, the communication device being one of the nodes and comprising at least one microprocessor configured for carrying out the steps of:

receiving a trigger frame from the access point, the trigger frame reserving at least one communication channel of the wireless network for a transmission
20 opportunity and a plurality of resource units splitting the communication channel in the frequency domain, the plurality of resource units having the same time length in the time domain, and

transmitting data to the access point on one of the resource units,

25 wherein resource units within the communication channel have different frequency widths.

21. A non-transitory computer-readable medium storing a program which, when executed by a microprocessor or computer system in a device of a wireless network, causes the device to perform the wireless communication method of Claim 1 or 2 or 10 or 11.