CLAIMS

1. A communication device, comprising:

a transmitter for transmitting data at one of a plurality of different access categories, ACs, defined by IEEE802.11 series standards in an enhanced distributed channel access, EDCA, transmission opportunity, TXOP, using contention parameters; and

a timer that is associated with a specific one of the ACs;

wherein the timer is used to keep the contention parameters remained set to MU-EDCA parameters for the specific AC for a predetermined duration upon transmitting data stored in a queue for the specific AC over a resource unit provided by an access point, before being set back to EDCA parameters different from the MU-EDCA parameters.

2. The communication device of Claim 1, configured to reinitialize the timer associated with the specific AC to the predetermined duration each time data from the specific AC is transmitted in a multi-user resource unit provided by an access point within a subsequent transmission opportunity granted to the access point.

3. The communication device of Claim 1, further comprising a receiver which periodically receives beacon frames from an access point, wherein a received beacon frame includes the EDCA parameters, the MU-EDCA parameters and an initializing value to initialize the timer associated with the specific AC to the predetermined duration.

4. The communication device of Claim 1, wherein the contention parameters for the specific AC are set to the MU-EDCA parameters only upon successfully transmitting data from this specific AC in a multi-user resource unit provided by an access point within a transmission opportunity granted to the access point.

5. The communication device of Claim 1, wherein the MU-EDCA parameters include a degraded Arbitration Inter-Frame Space Number, AIFSN, compared to an AIFSN of the EDCA parameters.

6. An access point in a communication network comprising a communication device having a transmitter for transmitting data at one of a plurality of different access categories, ACs, defined by IEEE802.11 series standards in an enhanced distributed channel access, EDCA, transmission opportunity, TXOP, using contention parameters, the access point comprising:

a transmitter which transmits EDCA parameters, MU-EDCA parameters different from the EDCA parameters and an initializing value to the communication device,

the initializing value initializing a timer of the communication device to a predetermined duration, the timer being associated with a specific one of the ACs and being used to keep the contention parameters remained set to the MU-EDCA parameters for the specific AC for the predetermined duration upon transmitting data stored in a queue for the specific AC over a resource unit provided by the access point, before being set back to the EDCA parameters.

7. The access point of Claim 6, wherein the transmitter periodically transmits beacon frames, wherein a transmitted beacon frame includes the EDCA parameters, the MU-EDCA parameters and the initializing value.

8. The access point of Claim 6, wherein the MU-EDCA parameters include a degraded Arbitration Inter-Frame Space Number, AIFSN, compared to an AIFSN of the EDCA parameters.

9. A communication method in a communication device having a transmitter for transmitting data at one of a plurality of different access categories, ACs, defined by IEEE802.11 series standards in an enhanced distributed channel access, EDCA, transmission opportunity, TXOP, using contention parameters, and having a timer associated with a specific one of the ACs, the communication method comprising:

using the timer to keep the contention parameters remained set to MU-EDCA parameters for the corresponding AC for a predetermined duration upon transmitting data stored in a queue for the specific AC over a resource unit provided by an access point, before being set back to EDCA parameters different from the MU-EDCA parameters.

10. A communication method in an access point of a communication network comprising a communication device having a transmitter for transmitting data at one of a plurality of different access categories, ACs, defined by IEEE802.11 series standards in an enhanced distributed channel access, EDCA, transmission opportunity, TXOP, using contention parameters, the communication method comprising:

transmitting EDCA parameters, MU-EDCA parameters different from the EDCA parameters and an initializing value to the communication device,

wherein the initializing value initializes a timer of the communication device to a predetermined duration, the timer being associated with a specific one of the ACs and being used to keep the contention parameters remained set to the MU-EDCA parameters for the corresponding AC for the predetermined duration upon transmitting data stored in a queue for the specific AC over a resource unit provided by the access point, before being set back to the EDCA parameters.

11. A non-transitory computer-readable medium storing a program which, when executed by a microprocessor or computer system in a device, causes the device to perform the communication method of Claim 9 or 10.

12. A beacon frame to be sent by an access point in a communication network comprising a communication device having a transmitter for transmitting data at one of a plurality of different access categories, ACs, defined by IEEE802.11 series standards in an enhanced distributed channel access, EDCA, transmission opportunity, TXOP, using contention parameters, the beacon frame comprising:

an information element comprising EDCA parameters, MU-EDCA parameters different from the EDCA parameters and an initializing value,

the initializing value initializing a timer of the communication device receiving the beacon frame to a predetermined duration, the timer being associated with a specific one of the ACs and being used to keep the contention parameters remained set to the MU-EDCA parameters for the corresponding AC for the predetermined duration upon transmitting data stored in a queue for the specific AC over a resource unit provided by the access point, before being set back to the EDCA parameters.