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| MCCAOP advertisements Clause 9.9a.3.8 | | | | |
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Abstract

This submission provides new text for Clause 9.9a.3.8 that utilizes the new information elements from doc 11-11/0216r0 that are used in MCCAOP advertisements, to improve the MCCAOP advertisement procedure .

* MCCAOP advertisements

A mesh STA with dot11MCCAActivated equal to true uses MCCAOP advertisements to advertise its MCCAOP neighborhood times and other periodic transmission of itself or of neighboring STAs to its neighbor mesh STAs.

This subclause describes how the mesh STA constructs the information elements needed to make an advertisement, the advertisement procedure, and the procedure to request an advertisement from a neighboring mesh STA.

**9.9a.3.8.1 Construction of an advertisement**

The advertisement set of a mesh STA is the set of periodic transmissions that a mesh STA advertises to its neighbor mesh STAs. The advertisement set consists of the following

* TX-RX advertisement set:
* All MCCAOP times for individually addressed frames for which the mesh STA is the MCCAOP owner or the MCCAOP responder.
* Broadcast advertisement set:
* All MCCAOP times for group addressed frames for which the mesh STA is the MCCAOP owner or the MCCAOP responder.

1. Optionally, known Target Beacon Transmission Times for which the mesh STA is either the transmitter or the receiver.

* Optionally, other transmission or reception times of a STA that is collocated with the reporting mesh STA, for example, Beacon or HCCA times of a collocated AP.
* Interfering advertisement set:
* TX-RX and broadcast times reported by neighbor peer mesh STAs of the mesh STA excluding those times for which the mesh STA is either the MCCAOP owner or the MCCAOP responder.

1. Optionally, TX-RX and broadcast times reported by neighbor non-peer mesh STAs of the mesh STA.

The advertisements set is represented by an MCCAOP Advertisements Overview element, and zero (if the advertisement set is empty) or more (if the advertisements set is non-empty) MCCAOP Advertisements elements.

The mesh STA acts as follows to construct the representation of its advertisement set:

1. It generates an advertisements set sequence number. Mesh STAs with dot11MCCAActivated equal to true assign MCCAOP advertisements set sequence numbers from a single modulo-256 counter The advertisements set sequence number is initialized to 0. On every advertisement, the advertisement set sequence number is either left unchanged or incremented by 1. The policy on when to advance the advertisement set sequence number is beyond the scope of this standard. However, if the advertisement set sequence number is incremented, then all previous advertisements become obsolete and the MCCAOP Advertisements Overview element, and all MCCAOP Advertisements elements shall be advertised. If the advertisement set sequence number is left unchanged, then some previously transmitted MCCAOP Advertisements elements that have the same MCCAOP advertisements set sequence number remain part of the advertisement, and only the MCCAOP Advertisements Overview element, and all new MCCAOP Advertisements elements shall be advertised.
2. If the advertisement set is non-empty it constructs one or more MCCA reports according to the format described in Clause 7.3.2.106.3 as follows
   1. If the TX-RX advertisement set is non-empty is constructs one or more TX-RX reports according to the format described in Clause 7.3.2.106.3 such that
      1. Each report contains at most dot11MCCAOPMaxReportLength reservations
      2. Each reservation in the TX-RX advertisement set occurs exactly in one TX-RX report
   2. If the broadcast advertisement set is non-empty is constructs one or more broadcast reports according to the format described in Clause 7.3.2.106.3 such that
      1. Each report contains at most dot11MCCAOPMaxReportLength reservations
      2. Each reservation in the broadcast advertisement set occurs exactly in one broadcast report
   3. If the interfering advertisement set is non-empty is constructs one or more interfering reports according to the format described in Clause 7.3.2.106.3 such that
      1. Each report contains at most dot11MCCAOPMaxReportLength reservations
      2. Each reservation in the interfering advertisement set occurs exactly in one interfering report
3. If the advertisement set is non-empty, it constructs one or more MCCAOP Advertisements elements such that
   1. The advertisements set sequence number is included in the Advertisements Set Sequence Number subfield of the MCCAOP Advertisements Elements Information field of the MCCAOP Advertisements element.
   2. Each MCCAOP Advertisements element is assigned a unique identifier that can be represented by means of a 4 bit unsigned integer. This identifier is included in the MCCAOP Advertisement Element Index subfield of the MCCAOP Advertisements Element Information field of the MCCAOP Advertisements element. If the advertisement set sequence number was left unchanged, the mesh STA shall not use identifiers *i* such that bit *i* was set to 0 in the MCCAOP Advertisements Indicator subfield of the most recent MCCAOP Advertisements Overview element and such that bit *i* was set to 1 in an MCCAOP Advertisements Indicator subfield of another MCCAOP Advertisements Overview element with the same advertisement set sequence number.
   3. If the advertisement set sequence number was left unchanged and if an MCCAOP Advertisements element with the same identifier was part of the previous advertisement, then the MCCAOP Advertisements element shall be identical to the MCCAOP Advertisements element that was part of the previous advertisement. Otherwise, it shall construct a new MCCAOP Advertisements element as follows. Each MCCAOP Advertisements element includes at least one of the TX-RX reports, broadcast reports, or interfering reports. Moreover, it includes at most one of the TX-RX reports, at most one of the broadcast reports, and at most one of the interfering reports. In case the MCCAOP Advertisements element contains a TX-RX report, the TX-RX Report Present subfield of the MCCAOP Advertisement Element Information field is set to 1, otherwise this subfield is set to 0. In case the MCCAOP Advertisements element contains a broadcast report, the Broadcast Report Present subfield of the MCCAOP Advertisement Element Information field is set to 1, otherwise this subfield is set to 0. In case the MCCAOP Advertisements element contains an interfering report, the Interfering Report Present subfield of the MCCAOP Advertisement Element Information field is set to 1, otherwise this subfield is set to 0.
   4. Each report as constructed in step 2) is present in exactly on MCCAOP Advertisements element.
4. It constructs one MCCAOP Advertisements Overview element such that
   1. The Advertisements Set Sequence Number field is set to the advertisement set sequence number.
   2. The Medium Access Fraction field is set to the medium access fraction.
   3. The MAF limit field is set to the value of dot11MAFlimit.
   4. The Accept Reservations field is set to 1 If the number of reservations in its neighborhood MCCAOP times is less than dot11MCCAMaxTrackStates, and set to 0 otherwise.
   5. It constructs a bit map of two octets such that bit *i* in this bitmap is set to 1 if an MCCAOP Advertisements element with identifier equal to *i* is part of this advertisement. The Advertisements Set Indicator field is set to equal this bitmap.

NOTE: The Advertisement Set Sequence Number identifies the current distribution of the advertisement set over the MCCAOP Advertisement elements. Using a new Advertisement Set Sequence Number signals a complete overhaul of the distribution of the advertisement set over the MCCAOP Advertisement elements, and requires an advertisement of all reservations in the MCCAOP neighborhood times. Leaving the advertisement set sequence number unchanged as in the previous MCCAOP Advertisements Overview element ensures that MCCAOP Advertisement elements that have previously been advertised are not changed and retain their validity. This enables a limited advertisement procedure in which only new MCCAOP Advertisements elements are advertised. Additionally, this allows mesh STAs that operate in powers save mode to request a limited update of the advertisement set of a neighboring mesh STA in which only new MCCAOP Advertisements elements are included.

**9.9a.3.8.2 Advertisement procedure**

To advertise its advertisement set, the mesh STA constructs a representation of the advertisement set as described in Clause 9.9a.3.8.1. The advertisement set is advertised by transmitting an MCCAOP Advertisement Overview element and zero or more MCCAOP Advertisements elements (see 9.9a.3.8.1) to neighbor peer mesh STAs. The MCCAOP Advertisements Overview element and the MCCAOP Advertisements elements are transmitted in Beacon frames, Probe Response frames, or MCCAOP Advertisements frames.

A mesh STA shall advertise its advertisement set according to the following rules:

1. It shall advertise at least one MCCAOP Advertisements Overview element in every dot11MCCAAdvertPeriodMax DTIM intervals.
2. It shall construct a new representation of its advertisement set within dot11MCCAAdvertPeriodNew TUs after its MCCAOP neighborhood times changed. It shall advertise its MCCAOP Advertisements Overview element and any new MCCAOP Advertisements elements within dot11MCCAAdvertPeriodNew TUs after its MCCAOP neighborhood times changed.
3. If a mesh STA receives an MCCAOP Advertisement Request frame it shall act as described in Clause 9.9a.3.8.3.

**9.9a.3.8.3 Receipt of an MCCAOP advertisement**

TODO: Upon receipt, it shall check the overview element whether it has all the MCCAOP Advertisements elements. If not, it shall request a new one at least within dot11MCCAUpdateAdvertisementSetTimeOut.

**9.9a.3.8.3 Advertisement request procedure**

A mesh STA with dot11MCCAEnabled equal to true shall periodically advertise its