IEEE P802.11
Wireless LANs

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| Proposed Resolution Text for CID 3012 |
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Abstract

This document describes the text proposal for clause 11.55.3.2.

**The baseline is D3.0.**

# Proposed text

### 11.55.3.2 EBCS DL operation at an EBCS AP

EBCS DL operation is enabled in an EBCS AP if the length of the dot11EBCSTrafficStreamTable is greater than 0. The EBCS traffic streams to be transmitted are specified in dot11EBCSTrafficStreamTable. The EBCS traffic streams are handled differently than other traffic. An EBCS content ID and EBCS Content MAC address shall be assigned by the EBCS traffic stream mapper located at the entry of the DSAF to identify each different traffic stream of content. The EBCS traffic stream mapper shall be configured according to the EBCS content list. Each content ID shall be unique in the EBCS AP group if the EBCS AP belongs to an EBCS AP group, otherwise each content ID shall be unique in the EBCS certificate group. The content ID shall be nonzero. [3023]

NOTE—The content ID is contained in the EBCS content MAC address. The value 0 is not used, to avoid duplication of the EBCS content MAC address and the EBCS info MAC address. [3185]

An EBCS AP that has enabled EBCS [3181] DL may use an AP certificate. An EBCS AP using an AP certificate shall belong to an EBCS certificate group, otherwise it shall not belong to an EBCS certificate group. An EBCS AP that has enabled EBCS [3181] DL ~~should~~ may [3178] belong to an EBCS AP group. An EBCS AP group is a subgroup in an EBCS certificate group ~~if the EBCS AP belongs to an EBCS certificate group~~ [3179]. Each EBCS AP group is identified by a 2 octet EBCS AP group I~~P~~D in the range of 00-01 to 7F-FF indicated in dot11EBCSAPGroupID. ~~The EBCS AP group ID is configured in dot11EBCSAPGroupID.~~ [3180]

NOTE—The EBCS AP group ID that is encoded in the EBCS content MAC address (Address 1 field in MAC header) helps EBCS receivers to filter undesired frames. If the EBCS AP group ID is unique, then the EBCS receiver can omit the corresponding Address 1 filter and hence avoid performing unnecessary authentication steps. [3178]

When an EBCS AP is an HE AP:

* The BSS color of EBCS Info frames shall be 0.
* The BSS color of EBCS Data frames shall be 0 if association is not required to consume EBCS traffic streams, otherwise the BSS color of EBCS Data frames shall be the same as that indicated in the HE Operation element in the most recent Beacon frame. [3025]

~~An EBCS AP that has enabled DL belongs to an EBCS certificate group when the EBCS AP uses an AP certificate.~~ [3024, 3182]

~~EBCS DL operation is enabled in an EBCS AP if the length of the dot11EBCSTrafficStreamTable is greater than 0. The EBCS traffic streams to be transmitted are specified in dot11EBCSTrafficStreamTable. The EBCS traffic streams are handled differently than other traffic. An EBCS content ID and EBCS Content MAC address shall be assigned by the EBCS traffic stream mapper located at the entry of the DSAF to identify each different traffic stream of content. The EBCS traffic stream mapper shall be configured according to the EBCS content list. Each content ID shall be unique in the EBCS AP group if the EBCS AP belongs to an EBCS AP group, otherwise each content ID shall be unique in the EBCS certificate group. The content ID shall be nonzero..~~ [3023]

An EBCS AP shall advertise its EBCS capabilities in the EBCS Support field in the Extended Capabilities element in Beacon frames and Probe Response frames. An EBCS AP that has EBCS DL enabled shall transmit EBCS Info frames periodically ~~at the transmission rate that is specified by dot11EBCSInfoInterval~~ [3186, 3187]. The interval between two consecutive EBC~~A~~S Info frames is specified by dot11EBCSInfoInterval. An EBCS AP shall advertise the timing of the next EBCS Info frame transmission in the EBCS Info Frame TX Countdown field in the EBCS Parameters element and shall not signal an upcoming EBCS Info frame via the TIM element (see 9.4.2.5 (TIM element)) in Beacon frames. The EBCS Info frame shall be transmitted among the set of group addressed frames transmitted immediately after the Beacon frame identified by the EBCS Info Frame TX Countdown field set equal to 1 in the EBCS Parameters element. Details of EBCS Info frame generation are described in 11.55.3.4 (EBCS Info frame generation and usage).

In the MAC, MSDUs with a non-null EBCS content ID in the MA-UNITDATA.request shall bypass IEEE 802.1X filtering. If the destination address in the MA-UNITDATA.request is an EBCS Content MAC address, the MAC shall process the request as an EBCS request, otherwise the MAC shall process the request as a non- EBCS request. For an MA-UNITDATA.request for EBCS content, the MAC shall use one ofthe following three frame authentication mechanisms according to the content ID that is encoded in the EBCS Content MAC address (11.55.2 (EBCS Addressing)).

— PKFA (12.14.2 (EBCS public key frame authentication (PKFA)))

— HCFA (12.14.3 (EBCS hash chain frame authentication (HCFA)))

— HLSA (12.14.4 (No frame authentication with mandatory higher layer source authentication (HLSA)))

EBCS traffic streams are carried by EBCS Data frames. The EBCS AP shall set the RA of the EBCS Data frame to the EBCS Content MAC address, the TA to its MAC address and the SA to the group address assigned to the EBCS traffic stream by the EBCS DL content server according to the HLP destination address, as described in 11.55.2 (EBCS Addressing).

An EBCS AP generates a PHY-TXSTART.request primitive with the transmission rate information specified by the dot11EBCSTrafficStreamPHYType and dot11EBCSTrafficStreamTxRate for each MPDU that contains an EBCS traffic stream [3190] according to the EBCS content ID. If dot11EBCSTrafficStreamPHYType is equal to 255, the AP may select a transmission rate following the rules specified in 10.6.5.4 (Rate selection for other group addressed Data and Management frames)

When dot11EBCSTrafficStreamBufferable for an EBCS traffic stream is true, an EBCS AP shall buffer the EBCS Data frames for that EBCS traffic stream and shall signal buffered EBCS Data frames via the EBCS TIM field or the EBCS TIM element (see 9.4.2.297 (EBCS TIM element)) instead of the TIM element. An EBCS AP shall select the Bitmap Mode value in the EBCS TIM element that results in a smaller size of the Content ID Bitmap field. The EBCS AP shall transmit the buffered EBCS Data frames in the EBCS DTIM period specified by the EBCS TIM element. The EBCS AP shall set the More Data subfield in the Frame Control field in the EBCS Data frame to 1 if more EBCS Data frames of the same EBCS traffic stream are buffered at the AP, otherwise the More Data subfield shall be set to 0.

When dot11EBCSTrafficStreamBufferable for an EBCS traffic stream is false, an EBCS AP shall not buffer the EBCS Data frames and shall transmit the EBCS Data frames that contain the EBCS traffic stream as soon as possible and shall not signal via the EBCS TIM element or the TIM element

An EBCS AP shall transmit the EBCS TIM element in Beacons if dot11EBCSTIMInBeacon is true, otherwise in EBCS Info frames.

NOTE—The TIM element has only 1 bit for signaling buffered group addressed frames and so cannot differentiate between different streams of traffic. If an EBCS AP were to use the TIM element, an associated non-AP STA that does not subscribe to any EBCS traffic stream would stay awake for the EBCS traffic streams. This would cause unnecessary power consumption at the STA. Similarly, using a TIM element would cause an unassociated non-AP STA that subscribes to an EBCS traffic stream to stay awake for any non-EBCS group addressed traffic.

The frame sequence of the EBCS DL is shown in Figure 11-61f (EBCS DL frame sequence)

**Figure 11-61f— EBCS DL frame sequence**

NOTE—An EBCS AP might transmit EBCS Info frames and EBCS Data frames that contain the same Frame Body field multiple times consecutively to increase redundancy. ~~Beacon, Probe Request/Response, ANQP Request/Response, Authentication, Association Request/Response and EBCS Content Request/Response frames, and 4-way handshake are optional to receive EBCS traffic streams.~~ Beacon, Probe Request/Response, ANQP Request/Response, Authentication, Association Request/Response and EBCS Content Request/Response frames, and 4-way handshake might be optional to receive EBCS traffic streams depending on the requirements and status of the desired EBCS traffic streams. [3192, 3111]