IEEE P802.11  
Wireless LANs

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| Normative Text – CIDs for Jarkko Kneckt | | | | |
| Date: 2015-03-10 | | | | |
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|  |  |  |  |  |

Abstract

The submission contains the normative text to resolve comments assigned for Jarkko Kneckt.

Submission 11-15-323 contains the resolutions of the comments.

The revision 1 contains resolutions discussed in the Tuesday 10.3 AM1 meeting slot in 802.11ai. The 802.11ai discussed on the comments and the last discussed comment was CID 7083. The submission 11-15-323r1 contains updated resolutions from the 802.11ai discusssions.

**3.1 Definitions**

**…**

NOTE—IETF RFC 6696 uses ~~IETF uses~~  [CID7108] “ERP” for the abbreviation of EAP reauthentication protocol whereas IEEE Std 802.11uses “EAPRP” because “ERP” stands for “Extended Rate PHY” in IEEE Std 802.11.

**3.2 Definitions specific to IEEE Std 802.11**

***//Instructions to the Editors:Add the following definition to alphabetivcally correct location.***

**upstream network:** An integrated local area network (LAN) to which an access point (AP) is connected through a portal. [CID7464]

~~Partial Advertisement Protocol ID: A value corresponding to the five least significant bits (LSBs) of an Advertisement Protocol ID as defined in Table 8-210 (Advertisement protocol ID definitions) in 8.4.2.92 (Advertisement Protocol element).~~[CID7206]

**6.3.3.3.2 Function**

***Change the first paragraph as follows:***

This primitive returns the descriptions of the set of BSS(s) detected by the scan process. Multiple MLMESCAN.confirm primitives can be issued when the value of the ReportingOption parameter in the MLMESCAN.request primitive is CHANNEL\_SPECIFIC or IMMEDIATE. When the value of the ReportingOption parameter value is AT\_END,or the ReportingOption parameter is not present, [CID7082] a single MLME-SCAN.confirm primitive is issued.

**6.3.3.3.2 Semantics of the service primitive**

***//Instructions to the Editors: Change the Name as shown below***

CAG ~~Tuple~~ Number [CID7141]

***//Instructions to the Editors: Change the Type as shown below***

~~Sequence of Integers~~ As defined in 8.4.2.172(CAG Number element) [CID7141]

***//Instructions to the Editors: Change the Description as shown below***

~~The values of CAG Version, Scope, and Partial Advertisement Protocol ID from the CAG Number element if such an element was present in the Probe Response or Beacon frame, else null. The parameter is optionally present.~~ [CID7141]

One or more CAG Tuples. Each CAG Tuple describes the CAG Version, Scope and Partial Advertisement Protocol ID. This parameter is optionally present when dot11FILSActivated is true; otherwise not present. [CID7141]

***//Instructions to the Editors: Insert the new row as specified below on top of SSID row, p.14,l.10.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Type | Valid range | Description | IBSS adoption |
| Short SSID Indicator[CID7083] | Boolean[CID7083] | true, false[CID7083] | If true, a Short SSID is contained in the SSID/Short SSID field. If false, an SSID is contained in the SSID/Short SSID field. [CID7083] | Do not adopt[CID7083] |

***//Instructions to the Editors: Change the Description of the Reduced Neighbor Report as follows:***

~~The Next TBTT information of neighbor BSS(s) of the found BSS.~~ The information of the Reduced Neighbor Information field of the received FILS Discovery frame. [CID7156] This parameter is optional.

***//Instructions to the Editor: Change the Description of the SSID / Short SSID Type as follows:***

The SSID as defined in the SSID element or the Short SSID as defined in the 8.4.2.169(Reduced Neighbor Report element) [CID7155].

***//Instructions to the Editor: Change the Description of the SSID / Short SSID Valid Range as follows:***

As defined in the ~~SSID element or~~ in the 8.4.2.169(Reduced Neighbor Report element) [CID7155].

***//Instructions to the Editor: Change the Headers of the MLME-SCAN-Stop and renumber the following MLME-Primitives correctly***

**6.3.4~~3.4~~ MLME-SCAN-STOP.request [CID7230]**

**6.3.4~~3.4~~.1 Function[CID7230]**

**6.3.4~~3.4~~.2 Semantics of the service primitive[CID7230]**

**6.3.4~~3.4~~.3 When generated[CID7230]**

**6.3.4~~3.4~~.4 Effect of receipt[CID7230]**

**6.3.5.3.2 Semantics of the service primitive**

***//Instructions to the Editor: Change the Description of the AssociationResponseTimeoutInfo as follows:***

Association Delay Info (in TU) that the AP indicates to the non-AP STA as an expected association latency ~~that the non-AP STA to be~~ .The value is set to dot11AssociationResponseTimeOut. [CID7143]

**6.3.11.2.2 Semantics of the service primitive**

***//Instructions to the Editor: Change the Type in Known OUIs as follows:***

A set of ~~elements~~ OUIs. [CID7146]

***//Instructions to the Editor: Change the Description of the in Known OUIs as follows:***

Zero or more ~~elements~~ OUIs [CID7146] that specify the OUIs known by the AP. The AP uses the known OUIs in condition does it respond to the Probe Request frame as defined in 10.1.3.4.3(Criteria for sending a response). [CID7461]

***//Instructions to the Editor: Add the new MLME primitive and renumber the primitive correctly.***

**6.3.ANA FILS Container [CID7223]**

**6.3.ANA.1 General**

This mechanism supports the process of IP address setup with a peer MAC entity.

**6.3.ANA.2 MLME-FILS Container.request**

**6.3.ANA.2.1 Function**

This primitive requests transmission of the FILS Container frame with a specified peer MAC entity.

**6.3.ANA.2.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-FILSContainer.request(

RequesterSTAAddress,

ResponderSTAAddress,

FILSContainerTimeLimit,

Protected,

FILSIPAddressAssignment,

VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| RequesterSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity that initiates the enablement process. |
| ResponderSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity of the enabling STA. |
| FILSContainerTimeLimit |  | > 0 | Specifies a time limit (in TU) after which the FILSContainer process is terminated. |
| Protected | Boolean | true, false | Specifies whether the request is sent using a robust Management frame. If true, the request is sent using the Protected DSE Enablement frame. If false, the request is sent using the DSE Enablement frame. |
| FILS IP Address Assignment | FILS IP Address Assignment element | As defined in 8.4.2.181(FILS IP Address Assignment element) | An explicit request for an IP address. The request may be for a new IP address or a specified IP address. The parameter is optionally present if dot11FILSActivated is true; otherwise not present. |
| VendorSpecificInfo | A set of elements | As defined in 8.4.2.25 (Vendor Specific element) | Zero or more elements. |

**6.3.ANA.2.3 When generated**

This primitive is generated by the SME for a STA to request IP Address setup with a specified peer MAC entity. During the IP Address setup procedure, the SME can generate additional MLME-ENABLEMENT.request primitives.

**6.3.ANA.2.4 Effect of receipt**

This primitive requests IP Address setup. In the case that a response is received from the responder STA, the MLME subsequently issues an MLME-FILSContainer.confirm primitive that reflects the results.

**6.3.ANA.3 MLME-FILSContainer.confirm**

**6.3.ANA.3.1 Function**

This primitive reports the results of an IPAddress setup with a specified peer MAC entity.

**6.3.ANA.3.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-FILSContainer.confirm(

RequesterSTAAddress,

ResponderSTAAddress,

Protected,

FILSIPAddressAssignment,

VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| RequesterSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity that initiates the enablement process. |
| ResponderSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity of the enabling STA. |
| Protected | Boolean | true, false | Specifies whether the request is sent using a robust Management frame. If true, the request is sent using the Protected DSE Enablement frame. If false, the request is sent using the DSE Enablement frame. |
| FILS IP Address Assignment | FILS IP Address Assignment element | As defined in 8.4.2.181(FILS IP Address Assignment element) | An explicit request for an IP address. The request may be for a new IP address or a specified IP address. The parameter is optionally present if dot11FILSActivated is true; otherwise not present. |
| VendorSpecificInfo | A set of elements | As defined in 8.4.2.25 (Vendor Specific element) | Zero or more elements. |

**6.3.ANA.4 MLME-FILSContainer.indication**

**6.3.ANA.4.1 Function**

This primitive indicates receipt of a request of IPAddress setup with the peer processing this primitive.

**6.3.ANA.4.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-FILSContainer.indication(

RequesterSTAAddress,

ResponderSTAAddress,

Protected,

FILSIPAddressAssignment,

VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| RequesterSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity that initiates the enablement process. |
| ResponderSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity of the enabling STA. |
| Protected | Boolean | true, false | Specifies whether the request is sent using a robust Management frame. If true, the request is sent using the Protected DSE Enablement frame. If false, the request is sent using the DSE Enablement frame. |
| FILS IP Address Assignment | FILS IP Address Assignment element | As defined in 8.4.2.181(FILS IP Address Assignment element) | An explicit request for an IP address. The request may be for a new IP address or a specified IP address. The parameter is optionally present if dot11FILSActivated is true; otherwise not present. |
| VendorSpecificInfo | A set of elements | As defined in 8.4.2.25 (Vendor Specific element) | Zero or more elements. |

**6.3.ANA.4.3 When generated**

This primitive is generated by the MLME as a result of the receipt of request to setup IP Addresses from a specific peer MAC entity.

**6.3.ANA.4.4 Effect of receipt**

The SME is notified of the receipt of this FILSContainer request.

**6.3.ANA.5 MLME-FILSContainer.response**

**6.3.ANA.5.1 Function**

This primitive is used to send a response to a specified peer MAC entity that requested IP Address setup with the STA that issued this primitive.

**6.3.ANA.5.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-FILSContainer.indication(

RequesterSTAAddress,

ResponderSTAAddress,

Protected,

FILSIPAddressAssignment,

VendorSpecificInfo

)

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| RequesterSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity that initiates the enablement process. |
| ResponderSTAAddress | MACAddress | Any valid individual MAC address | Specifies the address of the MAC entity of the enabling STA. |
| Protected | Boolean | true, false | Specifies whether the request is sent using a robust Management frame. If true, the request is sent using the Protected DSE Enablement frame. If false, the request is sent using the DSE Enablement frame. |
| FILS IP Address Assignment | FILS IP Address Assignment element | As defined in 8.4.2.181(FILS IP Address Assignment element) | An explicit request for an IP address. The request may be for a new IP address or a specified IP address. The parameter is optionally present if dot11FILSActivated is true; otherwise not present. |
| VendorSpecificInfo | A set of elements | As defined in 8.4.2.25 (Vendor Specific element) | Zero or more elements. |

**6.3.ANA.5.3 When generated**

This primitive is generated by the SME of a STA as a response to an MLME-FILSContainer.indication primitive.

**6.3.ANA.5.4 Effect of receipt**

This primitive initiates transmission of a response to the specific peer MAC entity that requested IP Address setup.

**8.3.3.1 Format of Management frames**

**//Instructions to the Editor: make the changes shown below.**

Frames of subtype Probe Request with a group address or individual address [CID7097] in the Address 1 field are additionally processed as described in 10.1.4.3.2 (Active scanning procedure for a non-DMG STA) for non-DMG STAs and 10.1.4.3.3 (Active scanning procedure for a DMG STA) for DMG STAs.

**8.4.2.173 FILS Request Parameters element**

**//Instructions to the Editor: add to figure 8-575d Element ID Extension field between the length and Parameter Control Bitmap field.** [CID7215]

**…**

Bits 0 to 6 of the Parameter Control Bitmap field correspond to the Parameter fields that are conditionally [CID7170] present in theelement. A value of 1 in a bit indicates the corresponding parameter is present, and the value of 0 indicates the corresponding parameter is not present.

…

Max Delay Limit ~~shall not be~~ is not [CID7225] present if FILS Criteria is not present or BSS Delay Criteria is not in use.

…

**10.1.4.1 General**

***Change the seventh paragraph as follows:***

Upon receipt of an MLME-SCAN.request primitive with the SSID parameter equal to the wildcard SSID, the STA shall passively scan for any Beacon, DMG Beacon, FILS Discovery, or Measurement Pilot frames, or actively transmit Probe Request or DMG Beacon frames containing the wildcard SSID, as appropriate depending upon the value of ScanMode ~~and capability of the STA~~. [CID7236]

…

The STA is not required to return a BSSDescriptionFromFDSet parameter for any BSS that ~~produces~~

~~a BSSDescriptionSet in this scan~~ is already a member of the BSSDescriptionSet. [CID7290]

**~~10.1.4.2.2 Passive scanning for DMG STAs~~ [CID7210]**

***~~Insert the following paragraph to the end of the subclause:~~***

~~If the MLME receives an MLME-SCAN-STOP.request primitive, the STA shall immediately stop the ongoing passive scanning process on the channel currently being scanned, and shall not continue the passive scanning process at unscanned channels listed in the ChannelList parameter of the MLME-SCAN.request primitive. The MLME shall issue an MLME-SCAN.confirm primitive with one or more BSSDescriptionSet, BSSDescriptionFromFDSet, or BSSDescriptionFromMeasurementPilotSet containing the gathered information since the previous issue of MLME-SCAN.comfirm primitive, or since the beginning of the scan, if the primitive has not been issued. The ResultCode shall be set to SUCCESS.~~

**10.1.4.3.2 Active scanning procedure for a non-DMG STA**

**…**

e) Initialize the ~~timer~~ ActiveScanningTimer to 0 and ~~start it running~~the ActiveScanningTimer. If PHYCCA.

indication (BUSY) primitive is received before the ~~timer~~ActiveScanningTimer reaches Min-

ChannelTime, then proceed to step ~~j~~ h) [CID7287]~~wait until the timer reaches MaxChannelTime and process all~~

~~received probe responses; otherwise, when the timer reaches MinChannelTime proceed to step f).~~

…

g) If the STA is a FILS STA and while the ActiveScanningTimer is less than MaxChannelTime:

1) Receive Probe Response, FILS Discovery and Beacon frames regardless of the receiver address. Process any received FILS Discovery, Probe Response and Beacon frames;

2) If the ReportingOption parameter of the MLME-SCAN.request primitive is IMMEDIATE, and the scanning FILS STA detects a BSS for which MLME-SCAN.confirm primitive has not been issued during the ongoing scan, then an MLME-SCAN.confirm primitive with the ResultCode equal to INTERMEDIATE\_SCAN\_RESULT and one or more BSSDescriptionSet, BSSDescriptionFromFDSet, or BSSDescriptionFromMeasurementPilotSet containing information of the detected BSS is immediately issued;

~~3)~~

h) If ~~T~~the[CID7287] ReportingOption parameter of the MLME-SCAN.request primitive is CHANNEL\_SPECIFIC, at the time when the ActiveScanningTimer reaches the MaxChannelTime issue an MLME-SCAN.confirm primitive, with the ResultCode equal to INTERMEDIATE\_SCAN\_RESULT and one or more BSSDescriptionSet, BSSDescriptionFromFDSet, or BSSDescriptionFromMeasurementPilotSet containing information of all APs that have been discovered from the scanned channel.

~~h~~ i) [CID7287]Set the NAV to 0 and scan the next channel.

**…**

**Figure 10-4b — Active scanning when a ~~non-DMG STA transmits~~ Probe Request ~~to an individual~~**

**~~Address~~ address 3 set to wildcard address. [CID7098]**

…

**10.1.4.3.4 Criteria for sending a ~~probe~~ response**

***Insert the following text after the first paragraph of the clause:***

A FILS STA shall not respond to a Probe Request frame if any of the following criteria is met for a FILS Request Parameters element contained in the Probe Request frame: [CID7086]

~~The STA is a FILS STA, the Probe Request frame includes FILS Request Parameters element and all of thefollowing criteria are met:~~ [CID7086]

1. If the FILS Criteria field is present in the FILS Requests Parameters element and the Max Delay Limit field of the FILS Request Parameters indicates a delay shorter than the selected average access delay of the responding STA. The BSS Delay Criterion field of the FILS Criteria field of the FILS Request Parameters element indicates the selected average access delay for the comparison as defined in Table 8-258a (BSS Delay Criterion subfield). The Max Delay Limit field indicates the maximum value of the selected average access delay. If the compared Average Access Delay indicates Measurement not available, the STA shall respond and the response shall include BSS AC Access Delay element as described in 8.4.2.43 (BSS AC Access Delay element) and Average Access Delay as described in 8.4.2.38 (BSS Average Access Delay element). If the compared Average Access Delay indicates Service unable to access channel, the response shall not be transmitted.
2. If the FILS Criteria field is present in the FILS Requests Parameters element and the PHY Support Criterion of the FILS Criteria field of the FILS Request Parameters element is 1 and the responding STA is not HT capable.
3. If the FILS Criteria field is present in the FILS Requests Parameters element and the PHY Support Criterion of the FILS Criteria field of the FILS Request Parameters element is 2 and the responding STA is not VHT capable.
4. If the Minimum Data Rate is present in the FILS Request Parameters element and the Minimum Data Rate field of the FILS Request Parameters element indicates a data rate higher than the one that can be provided over the MAC SAP.
5. If the RCPI Limit field is present in the FILS Request Parameters element and either of the following conditions is true:
6. The RCPI of the Probe Request frame > -90dBm + the value of the RCPI Limit field of the FILS Request Parameters element.
7. The RCPI Limit field of the FILS Request Parameters element contains value 255.
8. If the OUI Response Criteria field is present in the FILS Request Parameters element and the values of the Known OUIs elements of the MLME-START.request primitive that the STA has received do not equal to the values of OUIs as specified by the OUI Response Criteria of the FILS Request Parameters element ( 8.4.2.173 (FILS Request Parameters element)).
9. If Hashed Domain Names are present in the FILS element and none of them match with any of the Hashed domain names of the domains supported by the AP.

If the Max Channel Time field of the FILS Request Parameters element is present in the Probe Request frame, the responding FILS STA should discard the Probe Response frame which has not been transmitted as a response to the Probe Request frame when the elapsed time measured from the end of the reception of the Probe Request frame by the MAC entity of the responding STA exceeds the time indicated by value of the Max Channel Time field of the FILS Request Parameters element of the Probe Request frame. If the Max Channel Time field is not present in the Probe Request frame, transmission time of the Probe Response frame to the Probe Request frame by the responding STA is only limited by the retransmission procedure in 9.20.2.6 (Retransmit Procedures).

***//Note to the Editors: CID7183 Moves the text from the 10.1.4.3.5 to the end of the 10.1.4.3.4 clause.***

~~If a FILS STA receives one or more Probe Request frame(s), subject to the criteria above, and the STA has dot11OmitReplicateProbeResponses equal to true, the responding STA may transmit a Probe Response frame or a Beacon frame as a response to all Probe Request frames respond to all or some of the Probe Request frame(s) with a single Probe Response frame addressed to the broadcast address, or alternatively by not transmitting a Probe Response frame and instead letting the next Beacon frame be the response to the Probe Request frame(s).~~ [CID7184]

An individually addressed Probe Response frame, subject to the criteria above, shall be transmitted to all non-FILS STAs from which a Probe Request frame is received.

If a FILS STA has dot11FILSOmitReplicateProbeResponses [7227] equal to false, an individually addressed Probe Response frame, subject to the criteria above, shall be transmitted to all STAs from which a Probe Request frame is received. [CID7184]

If a FILS STA receives one or more Probe Request frame(s), subject to the criteria above, and the STA has dot11FILSOmitFILSReplicateProbeResponses [CID7227] equal to true, the responding STA shallselectthe response with the next Beacon frame or one or more Probe Response frames as a response to all Probe Request frames. [CID7184]

* The FILS STA shall ~~not~~[CID7185] respond with the next Beacon frame, as described in 10.1.3(Maintaining Synchronization),[CID7105] to Probe Request frames addressed to individual or broadcast address if all of these conditions are met: ~~When the Max Channel Time field is present in any of Probe Request frame(s),~~

1. The STA is queuing a Beacon frame for transmission,
2. The next TBTT of the responding STA is within dot11FILSBeaconResponseWindow [CID7226],
3. The next TBTT is no later than any deadline of Max Channel Time indicated in the FILS Request Parameter element of the Probe Request frame(s), if present,
4. The Beacon frame contains all elements requested by the Request element. [CID7184]

* If the next Beacon is not used as a response, a Probe Response frame is transmitted. The Probe Response frame shall be addressed to the broadcast or the address of the transmitter of the Probe Request frame. The Probe Response frame may be transmitted to all or some Probe Request frames received from FILS STAs. A FILS STA may choose not to respond to Probe Request frames from a FILS STA addressed to broadcast address if the responding STA receives an acknowledged probe response addressed to the requesting STA containing the SSID of the responding STA. [CID7184]

**10.1.4.3.5 Contents of a ~~probe~~ response**

A STA that responds to a probe request according to 10.1.4.3.4 (Criteria for sending a probe response) shall transmit a Probe Response or a Beacon frame as follows:

— The Probe Response frame is individually addressed to the STA that generated the Probe Request frame. A FILS STA that transmits a Probe Response frame shall either set the Address 1 field to the address of the STA that generated the probe request or shall set it to the broadcast address if the STA that generated the probe request indicated FILS Capability. A non-FILS STA that transmits a Probe Response frame shall set the Address 1 field to the address of the STA that generated the probe request.

— If a FILS STA and if the ~~FILS~~ Request ~~Parameters~~ element [CID7124] of the Probe Request includes the Reduced Neighbor Report Request element ID, a Probe Response frame or a Beacon frame if transmitted may include the Reduced Neighbor Report element if the criteria as defined in 10.1.4.3.4 (Criteria for sending a probe response) are met for the included BSS. The reported BSSs may have different primary channels to the responding STA.

~~— A STA in which dot11InterworkingServiceActivated is true may include in the Probe Response frame, a CAG Number element containing the current sequence number of the AP’s CAG configuration information.~~[CID7182]

— Each element that is listed by a non-FILS STA in a Request element and that is supported by the STA shall be included in the Probe Response frame.Each element requested by a FILS STA in a Request element shall be included in the Probe Response or a Beacon frame if the responding FILS STA supports that element~~. . These elements shall be returned in the same order as listed in the Request element.~~ An element that is listed in the Request element and that is not supported by the STA shall not be included. [CID7054]

* Elements that would not have been included otherwise shall be included after all of the elements that would have been included even in the absence of the Request element. [CID7054]
* Elements that would have been included even in the absence of the Request element shall be included in their normal position (see Table 8-27(Beacon frame body) and 8-34 (Probe Response frame body)),and may be included again after all of the elements that would have been included even in the absence of the Request element.

NOTE—An element that would necessarily be included anyway is not expected to be requested. [CID7054]

* Elements after all of the elements that would have been included even in the absence of the Request element shall be included in the same order as in the Request element. [CID7054]
* If dot11RadioMeasurementActivated is true and ~~if the Request element of the Probe Request includes the RCPI element ID, the STA shall include in the Probe Response an RCPI element containing the measured RCPI value of the received Probe Request frame.~~ [CID7054]]the RCPI element was requested, an RCPI element containing the RCPI of the Probe Request frame shall be included. If no measurement result is available, the RCPI value shall be set to indicate that a measurement is not available (see 8.4.2.37 (RCPI element) and Table 16-9 (RCPI values)). [CID7054]

— When a FILS AP responds to a Probe Request frames containing a FILS Capability field in the Extended Capabilities element equal to 1, and both STAs supports other than DSSS/CCK rates (see 16 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications) or 17 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification)) , the AP shall transmit Probe Response frame in a PPDU using a rate other than a DSSS/CCK ~~(see 16 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications) or 17 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification))~~ rate. [CID7125]

//Instructions to the Editors: The CID 7182 suggests to change the text in the paragraph below with the text in submission 14-1507r2. This change is implemented below.

~~— A STA in which dot11InterworkingServiceActivated is true may include in the Probe Response frame an CAG Number element containing the current sequence number of the AP's GAS configuration information. The current AP's ANQP Configuration information can be acquired by GAS query mechanism as described in 10.24.3 (Diagnostic request and report procedures).~~ [CID7182]

* A STA in which dot11InterworkingServiceActivated is true may include in the Probe Response frame a CAG Number element containing one or more current version numbers of the CAG information associated with the AP, where each version number is associated with an advertisement protocol. The current CAG information associated with the AP can be acquired by GAS query mechanism as decscribed in 10.25.3 (Interworking procedures: generic advertisement service) using the associated advertisement protocol. [CID7182]

***//Note to the Editors:CID 7183 moved the text below to previous clause.***

~~If a FILS STA receives one or more Probe Request frame(s), subject to the criteria above, and the STA has dot11OmitReplicateProbeResponses equal to true, the responding STA may transmit a Probe Response frame or a Beacon frame as a response to all Probe Request frames respond to all or some of the Probe Request frame(s) with a single Probe Response frame addressed to the broadcast address, or alternatively by not transmitting a Probe Response frame and instead letting the next Beacon frame be the response to the Probe Request frame(s).~~

~~When the Max Channel Time field is present in any of Probe Request frame(s), the FILS STA shall not respond with a Beacon frame to Probe Request frames addressed to individual or broadcast address if all of these conditions are met:~~

1. ~~The STA is queuing a Beacon frame for transmission,~~
2. ~~The next TBTT of the responding STA is within dot11BeaconResponseWindow,~~
3. ~~The next TBTT is no later than any deadline of Max Channel Time indicated in the FILS Request Parameter element of the Probe Request frame(s), if present,~~

~~d) The Beacon frame contains all elements requested by the Request element. .~~

~~If a FILS STA receives two or more Probe Request frames, subject to the criteria above, and the STA has dot11OmitReplicateProbeResponses equal to true, the responding STA shall transmit a Probe Response or a Beacon frame as a response to all Probe Request frames.~~

~~Otherwise, the STA shall transmit a Probe Response frame. The STA may respond with a single Probe~~

~~Response frame addressed to the broadcast address to all or some of the received Probe Request frame(s).~~

~~An individually addressed Probe Response frame shall be transmitted to all non-FILS STAs from which a~~

~~Probe Request frame is received. A FILS STA may choose not to respond to Probe Request frames from a FILS STA addressed to broadcast address if the responding STA receives an acknowledged probe response addressed to the requesting STA containing the SSID of the responding STA.~~

**10.1.4.3.7 Enhanced FILS active scanning to preferred AP**

…

* Vendor Specific element

***//Note to Editor :The last NOTE is moved as normative text.***

If a vendor-specific subelement is included in an element within the BSS Configuration Parameter Set, the APCSN will not provide any indication regarding if that vendor-specific subelement has changed or not, and AP-CSN shall not be increased if the only change within the BSS Configuration Parameter Set is due to the change to a vendor-specific subelement embedded in an element within the BSS Configuration Parameter Set. [CID7106]

NOTE—The Reduced Neighbor Report element is excluded from the BSS Configuration Parameter Set based on the principle that an element ~~should~~  is [CID7106] ~~be~~ excluded from the BSS Configuration Parameter Set if that element has no impact on a FILS STA's ability of using AP-CSN to make a decision of initiating an association procedure with an AP without receiving Beacon or Probe Response from the AP.

NOTE—Any change in a Fragment element ~~should~~  is [CID7106] ~~be~~ considered under the context of the element being fragmented by the Fragment element.

~~NOTE—If a vendor-specific subelement is included in an element within the BSS Configuration Parameter Set, the APCSN will not provide any indication regarding if that vendor-specific subelement has changed or not, and AP-CSN shall not be increased if the only change within the BSS Configuration Parameter Set is due to the change to a vendor-specific subelement embedded in an element within the BSS Configuration Parameter Set.~~ [CID7106]

A FILS AP should maintain an AP-CSN List which consists of the current AP-CSN value and zero or more previous AP-CSN values. For each maintained previous AP-CSN value, the AP also maintains the identifiers of the changed elements. The AP may maintain the AP-CSN values in the AP-CSN List for a duration whose value is out of the scope of this standard. [CID7240]

~~during the specified AP-CSN timer and if the AP-CSN timer of a maintained AP-CSN value expires, the AP-CSN value and the corresponding element IDs are discarded. How long an AP maintains the AP-CSN values is out of the scope of this standard.~~ [CID7240]

An AP maintaining an AP-CSN list shall increase the current AP-CSN value (modulo 256) by one if an update occurs to any of the fields or elements within the BSS Configuration Parameter Set.

A FILS AP may provide FILS STAs its AP-CSN value by sending a Beacon frame or a Probe Response frame including an AP-CSN element (as defined in 8.4.2.178 (AP Configuration Sequence Number element)).

A FILS non-AP STA identifies an BSS Configuration Parameter Set by its associated AP-CSN value and the AP’s BSSID.

A FILS non-AP STA may send a Probe Request frame including an AP-CSN element (as defined in 8.4.2.178 (AP Configuration Sequence Number element)), if the STA has the BSS Configuration Parameter Set associated with the AP-CSN of the AP. When sending a Probe Request frame including an AP-CSN element, the FILS non-AP STA shall set the Address 1 and Address 3 fields in the Probe Request frame to the BSSID of the AP, of which the AP-CSN is being sent. [CID7192]

When a FILS AP receives a Probe Request frame including a matched BSSID, if the Probe Request frame contains an AP-CSN element and the criteria for responding to a Probe Request (as defined in 10.1.4.3.4(Criteria for sending a probe response)) are met:[CID7241]

* If the AP does not maintain the AP-CSN List, the AP transmits Probe Response frame. [CID7241]
* If the AP maintains the AP-CSN List, ~~maintains the AP-CSN List, then~~ the AP should compare the received AP-CSN with the AP-CSNs stored in its AP-CSN List. ~~If the criteria for responding to a Probe Request (as defined in 10.1.4.3.4 (Criteria for sending a probe response)) are met,~~ ~~t~~The AP sends a Probe Response frame according to the comparison result, as follows: [CID7241]

**References:**

**802.11ai D4.0**

**802.11mc D4.0**