IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MAC Comments for Discussion | | | | |
| Date: 2017-11-02 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Mark Hamilton | Ruckus/Brocade | 350 W Java Dr  Sunnyvale, CA 94089 | +1.303.818.8472 | mark.hamtilon2152@gmail.com |

Abstract

This submission highlights some MAC CIDs for TGm discussion. CIDs included: 3, 15, 40, 106, 116, 134, 174, 197, 198, 180, 266, 283, 290, 326, 337, and 362.

R0 – initial version

R1 – updated per comments received at Waikoloa F2F, and added some proposed resolutions

R2 – updated per comments on Oct 6 telecon, CIDs 266 and 326 ready for motion, updates per actions suggestsed on Oct 6 telecon. Noted that CID 15 is resolved, per BRC agreement, for the immediate comment. But, the more global clean-up might/should continue in the background.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 3 | 10.24.2 | 1523 | 7 |  | Setup of block ack agreement requires too much management overhead | Add an Implicit Block ACK mechanism. Draft text to be provided. |

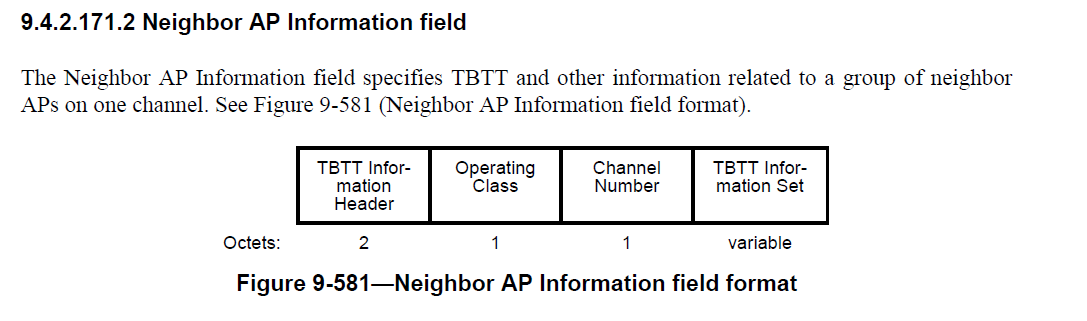
Discussion

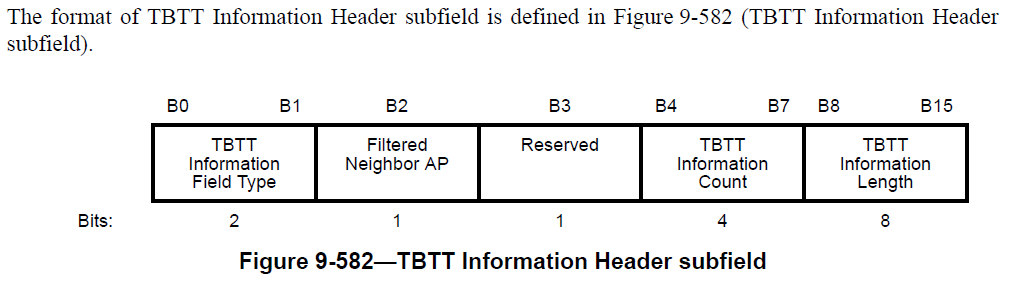
Chris Hansen to discuss/present.

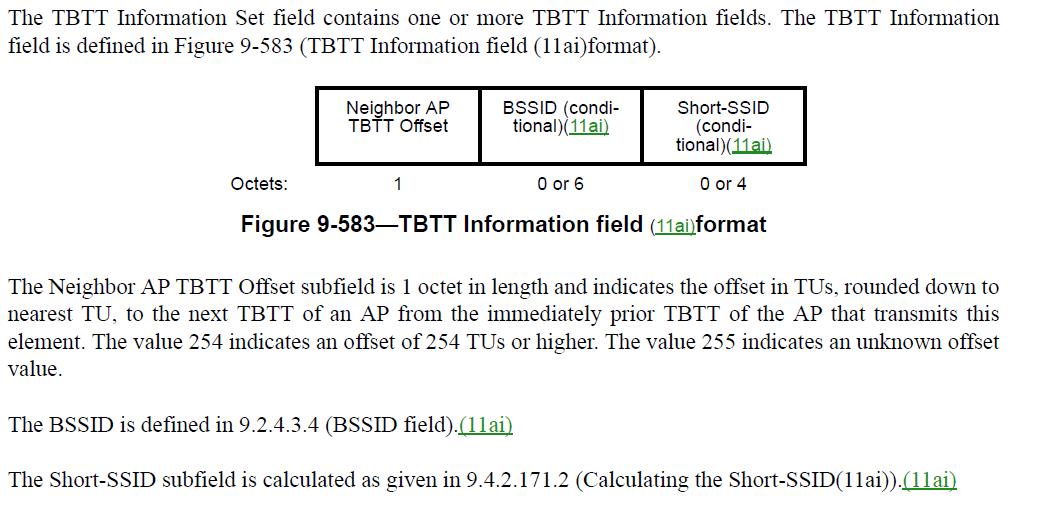
RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 15 | 9.4.2.171.2 | 1186 | 13 |  | what is "conditional"? Should it be "optional"? | Change "conditional" to "optional", 2 instances. |

Discussion







Agree in principle. What is our current convention, if the length is "0 or 6", etc - is that also "optional" or does the "0 or" already make it optional? (Current draft is inconsistent – “Optional” or “(optional)” are mostly “0 or <n>” or “variable”; many “0 or <n>” are not maked optional.)

Per Waikoloa F2F (Sept, 2017), agreed on a convention of saying “(optional)” in the text, and using “0 or <n>” for the Octet count/length.

Per Oct 6, 2017 telecon, agreed to resolve this particular comment with Replace “(conditional)” with “(optional)” in the cited locations (2 places). And, work in the background on the bigger (global) fixes.

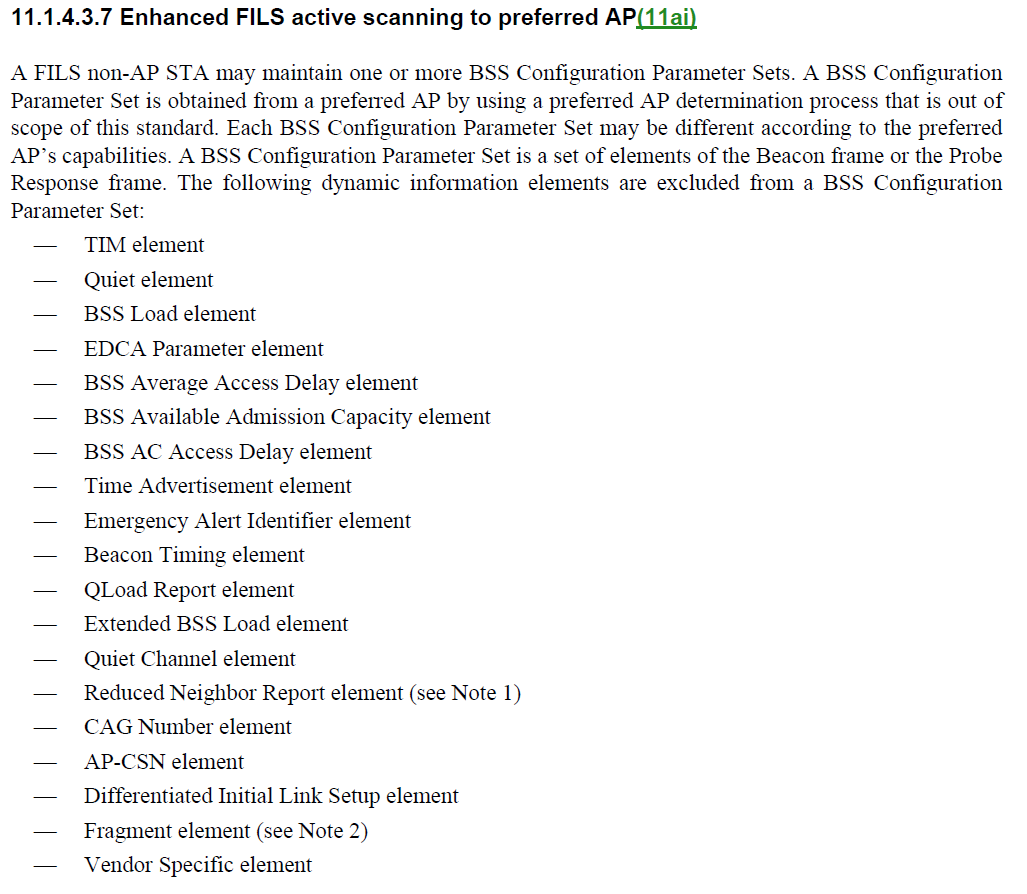
RESOLUTION

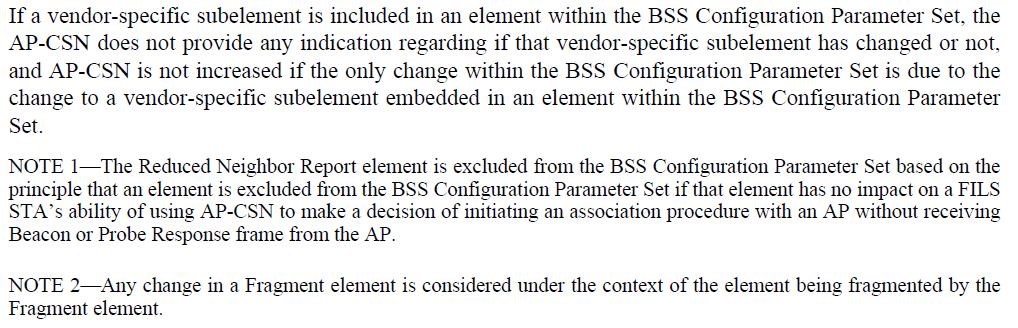
Revised. Replace “(conditional)” with “(optional)” in the cited locations (2 places). Also, delete “(*j*)” in the text of 9.4.1.32,replace “*j*” with “3 or 5” as the Octet count indication in Figure 9-100 (Organization Identifier field), and “variable” with “3 or 5” for “OI #1” and with “0, 3 or 5” for “OI#2” and “OI#3” in Figure 9-448 (Roaming Consortium element). Replace “variable” with “3 x *n*” in Figure 9-587. Replace “variable” with “2 x *n*” for the Octet count of the “Realm Identifier” field in Figure 9-600. Replace “variable” with “2 x *n*” for the “ANQP Capabilities” field in Figure 9-621. Replace “variable” with “3 or 5” in Figures 9-629 and 9-630. Replace “variable” with “3 or 5” in Table 9-287. Replace “variable” with “0 or 3” for the “Device Class” field in Figure 9-663. Replace “variable” with “18 x *n*” for the Device Location Information field in Figure 9-663. Replace “variable” with “0 or 10” and add “(optional)” to the text name of the field, for the “DMG Link Margin” field in Figure 9-685. Replace “variable” with “0 or 7” and add “(optional)” to the text name of the field, for the “DMG Link Adaption Acknowledgment” field in Figure 9-685. Replace “variable” with “0 or 5” for the “Wide Bandwidth Channel Switch element” in Figure 9-693. Remove all three “Zero or one” indications in Figure 9-693 and add “(optional)” with the text boxes for the associated fields. Replace “variable” with “3 or 5” for the Organization Identifier field in Figure 9-698. Replace “variable” with “6 x *n*” and add “(optional)” to the text name of the field, for both the “Active TXOP Reservations” and “Pending TXOP Reservations” fields in Figure 9-707.

. . . There are more, beyond 9.6.8.25. Check with the TG on direction, before proceeding.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 40 | 11.1.4.3.7 | 1714 | 1 |  | "If a vendor-specific subelement is included in an element within the BSS Configuration Parameter Set," Unfortunately the previous list specifically states that VS IE is excluded so this is confusing. Therefore, delete Vendor Specific element from the list P1713L62 | At P1713 L62 delete "- Vendor Specific element" |

Discussion





Propose: Rejected. The text at P1714.1 says "is included *in an element within* the BSS Configuration Parameter Set". So, a VSE is not directly included, but might be included through embedding.

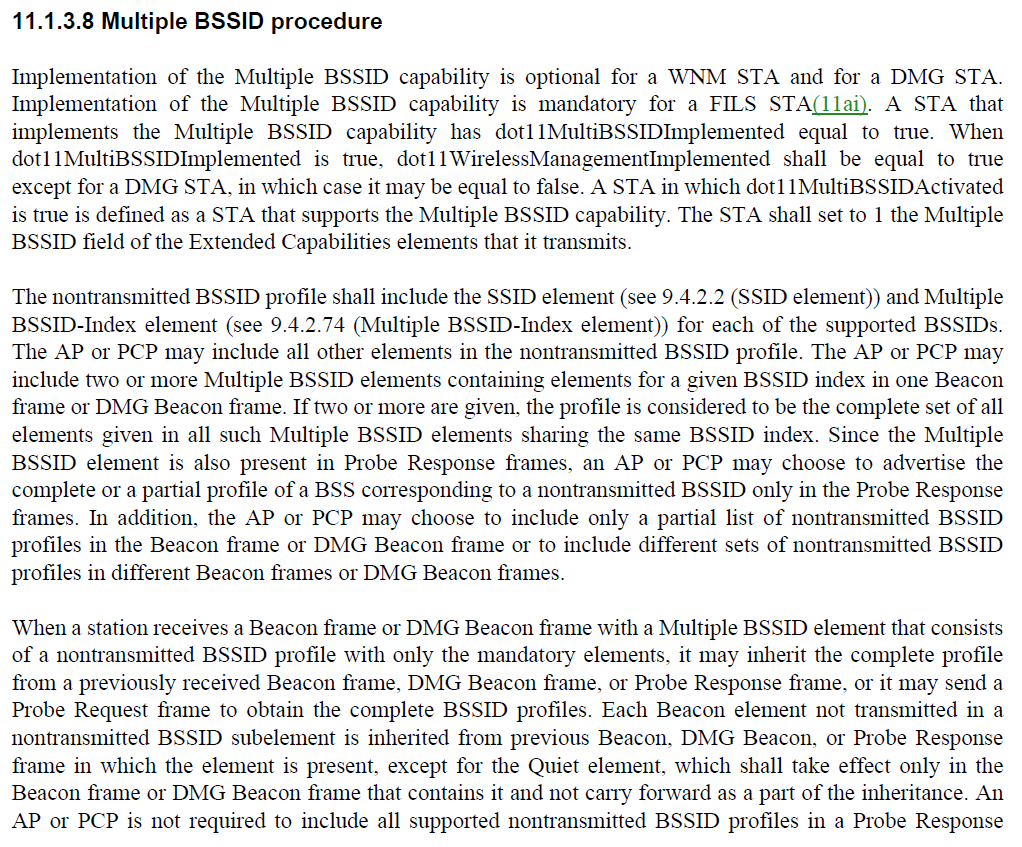
Per discussion in Waikaloa F2F, also note that the exlusion list calls out the Vendor Specific \_*element*\_, but the text is discussion the possible inclusion of a Vendor Specific \_*subelemnt*\_, another indication that these are different things, and the text is not in contradiction.

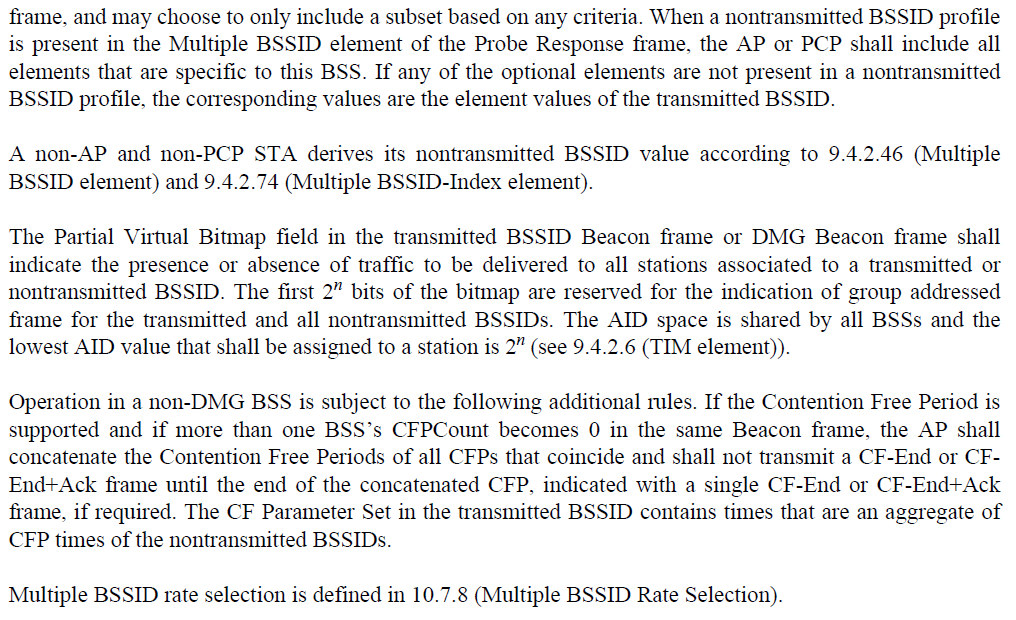
RESOLUTION

Rejected. The text at P1714.1 refers to “a vendor-specific *subelement*”, but the exclusion list just above is excluding a “Vendor Specific element”, and those are different things, so there is no conflict. Note that a vendor-specific subelement can be included through embedding, even though the Vendor Specific element is excluded.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 106 | 11.1.3.8 |  |  |  | There has been multiple incompatible interpretation among (or within, as may be the case sometimes) vendors on how Multiple BSSID functionality is supposed to work and how addresses can or cannot change during a lifetime of a BSS. To avoid interoperability issues, it would be good to have a clear statement saying that there is exactly one transmitted BSSID for each nontransmitted BSSID and that transmitted BSSID cannot change during the lifetime of a BSS that uses a nontransmitted BSSID. | If the group agrees with my interpretation in the comment, please add an explicit statement with that clarification into 11.1.3.8 (Multiple BSSID procedure). |

Discussion





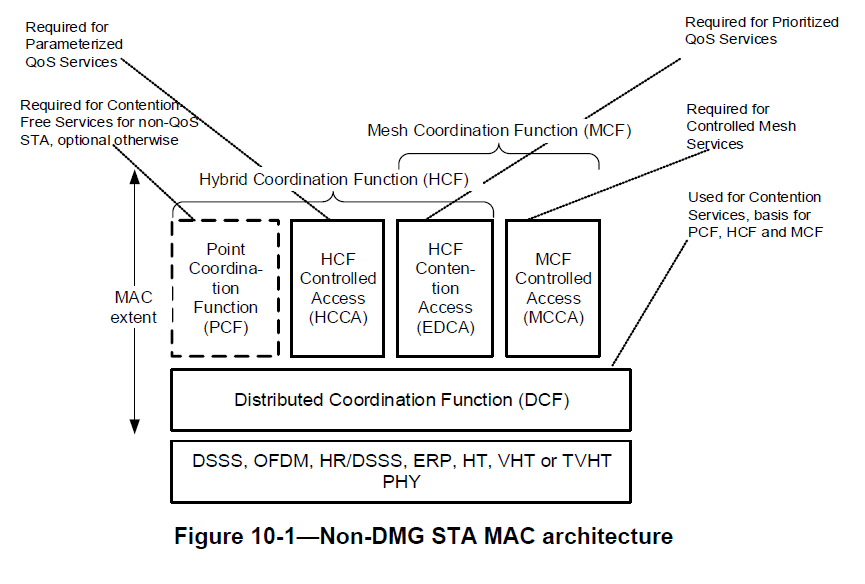
Per the commenter's (Jouni Malinen) request, discuss within TGm.

Discussed at Waikoloa F2F, and the TG does generally agree. Needs a submission.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 116 | 10.2.1 | 1398 | 1 |  | HCF doesn't really use DCF architecturally. It 'replaces' DCF. | Change Figure 10-1 to show HCF (EDCA and HCCA) as directly using the PHY. Cleanup text in 10.2, 10.3 and 10.22 to not describe HCF as using DCF. |

Discussion



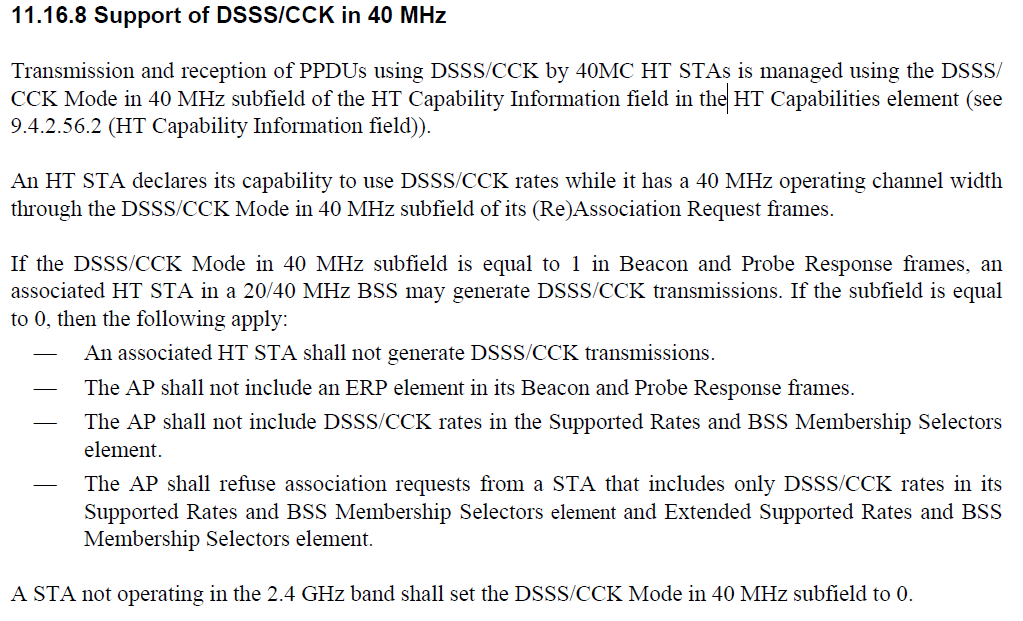
Needs a scrub to be sure the assertion in the Comment is true. Then, would require considerable changes (as noted in the Proposed Change). Discuss with TGm.

From Waikoloa F2F discussions: Generally agree with this direction. Need to look at functions that are “common” between DCF and HCF (some are explicitly called ‘common’ and some might not be). It will take careful work to separate DCF out. Once DCF is separated, it could be marked obsolete/deprecated. Needs submission.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 134 | 11.16.8 | 1878 | 15 |  | If the DSSS/CCK Mode in 40 MHz subfield is equal to 0 in a beacon/probe response, it is not clear whether the STA is required to set it to 0 in the association request. The description is "An HT STA declares its capability to use DSSS/CCK rates while it has a 40 MHz operating channel width", which is vague (capability to use v. intent to use) | Append "- The DSSS/CCK Mode in 40 MHz subfield transmitted by a (re)associating STA is ignored." at the end of the list in the para after the referenced location |

Discussion



Propose: Accepted. Any issue with this (potential) change in behavior/requirement? (What if some existing APs don't ignore this? - although, it is not clear what they do, then)

From Waikoloa F2F: How do we test that something is ignored. Suggest saying “can ignore” instead, which also solves any existing AP behaviour problem.

Proposal: Revised. Add a new bullet to the list at the cited location, “- The AP can ignore the DSSS/CCK Mode in 40 MHz subfield transmitted by a (re)associating STA.”

Alternate Proposal: Rejected. The AP can do nothing useful with the DSSS/CCK Mode in 40 MHz subfield transmitted by a (re)associating STA, it is unnecessary to state this.

Note relationship to CID 133. Transfer to PHY.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 174 | 10.21.5 | 1482 | 29 |  | Coverage classes are not interoperable, because there is no mechansim for an AP to know whether a STA supports them (and thence to deny association if it doesn't) | Mark coverage classes as obsolete and subject to deletion in a future version of the standard |
| 197 | 11.9.3 | 1818 | 1 |  | Quiet Channel does not work in an IBSS because it's set by the BSS starter and replicated forever after. See further discussion under CID 7271 in 16/0276 | Delete or deprecate use of Quiet Channel elements in IBSSen |
| 198 | 11.9.3 | 1818 | 1 |  | Quiet Channel does not work in an IBSS and probably doesn't work in an MBSS either. See further discussion under CID 7271 in 16/0276 | Delete or deprecate use of Quiet Channel elements in MBSSen |

Discussion

Is there agreement from the TG? Is there any general guidance/agreement on features to be marked as Obsolete?

From discussions in Waikoloa:

* Ir might be helpful to search where these features came into 802.11, as a refernce to why they were thought to be useful (at that time), and/or to help identify experts that can discuss obsoleting or deprecating now.
* Action Item: Dorothy to send an email to reflector, seeking any background or interest.
* On CID 197: Doesn’t Quiet Channel follow the DFS owner (so not related to BSS starter)? Did this have something to do with 802.11j?

Seems the commenter meant CID 7212 in REVmc. Document 11-16/0276 included fairly extensive changes to clarify limitations of Quiet Channel to infrastructure BSSs in many cases. Now that those changes have been applied, there is no clear indication that it is possible, or mechism specified, to use Quiet Channel within an IBSS.

As follow-up to the F2F discussion, Coverage Classes was introduced with 802.11y, Quiet Channel was introduced with 802.11ac.

Recommended way forward:

* Coverage Classes: Refer to Peter E
* Quiet Channel: Refer to the commenter (Mark R) to clarify how/where the current Std says Quiet Chanel can be used with IBSSs.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 180 | 11.3.5.4 | 1773 | 54 |  | It is not clear what is reset in the case of (re)association to a different AP | At the end of the last step of 11.3.5.2, .3 add "All states, agreements and allocations shall be deleted or reset to initial values." At the end of the last step of 11.3.5.5, add "In the case of reassociation to a different AP, all states, agreements and allocations shall be deleted or reset to initial values." |

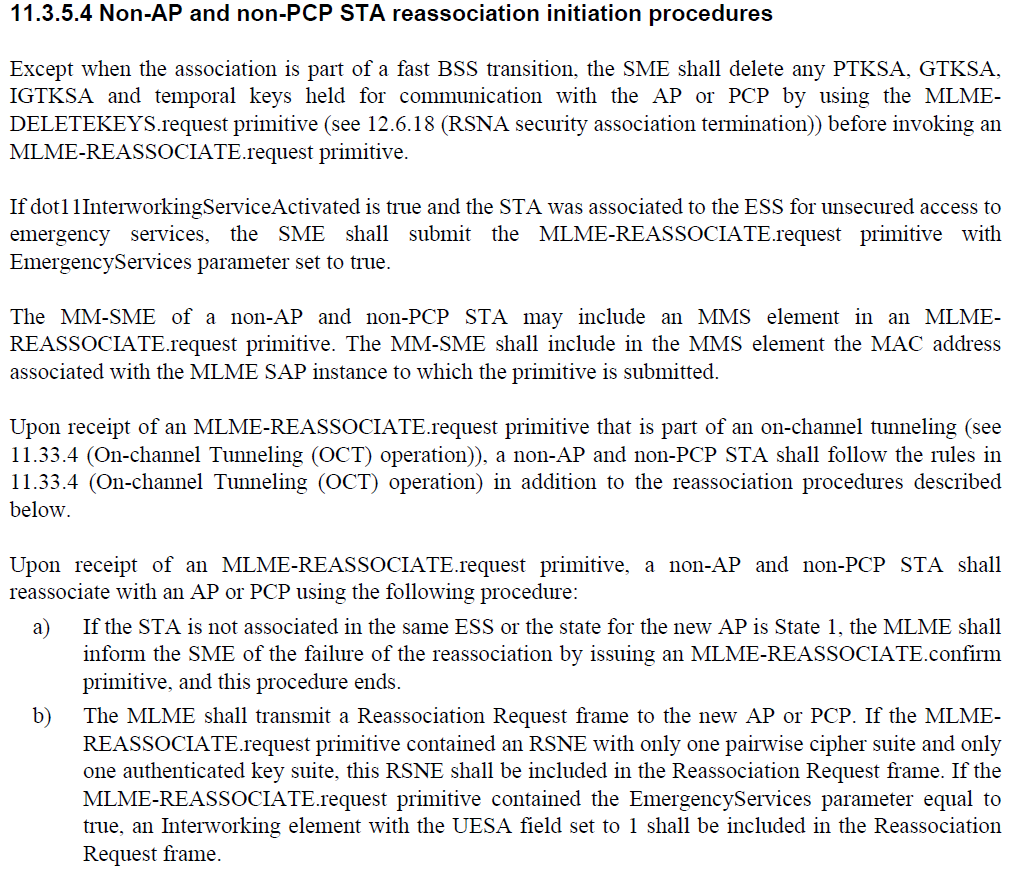
Discussion

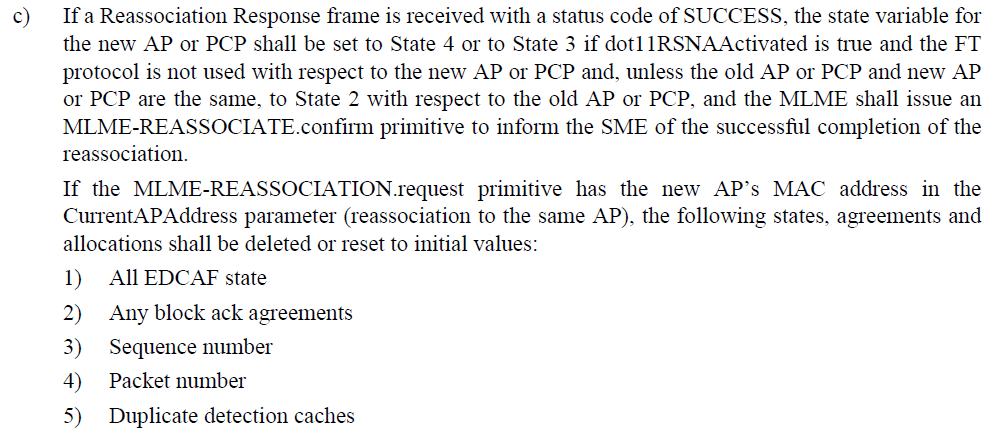
Also note CID 179:

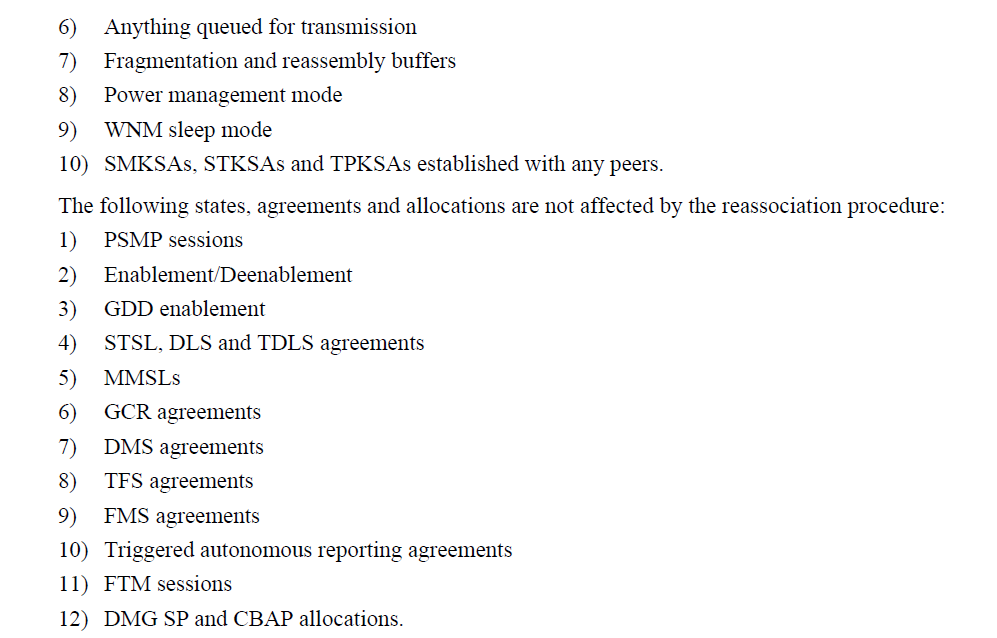
Comment: It is not clear what is reset in the case of reassociation to a different AP.

Proposed Change: At the end of step c) add "In the case of reassociation to a different AP, all states, agreements and allocations shall be deleted or reset to initial values."

Proposed Resolution: Revised. Add, as new paragraph at the end of step (c): "In the case of reassociation to a different AP (the CurrentAPAddress parameter is not the new AP's MAC address), all the states, agreements and allocations listed above are deleted or reset to initial values."







This needs further discussion. 1) Not all state is reset (for example, clearly the state for the AP (link) is not reset, any PMKSA is not reset, etc. So, we need to reference the list in 11.3.5.4, somehow, but probably don’t want to replace the list multiple times. This needs some restructuring, in a submission. 2) Are all the state variables reset if the response is not SUCCESS?

From Waikoloa F2F: Seems okay to consider, but need volunteer(s) to review “all states, agreements and allocations” to create a more careful list. Needs a submission.

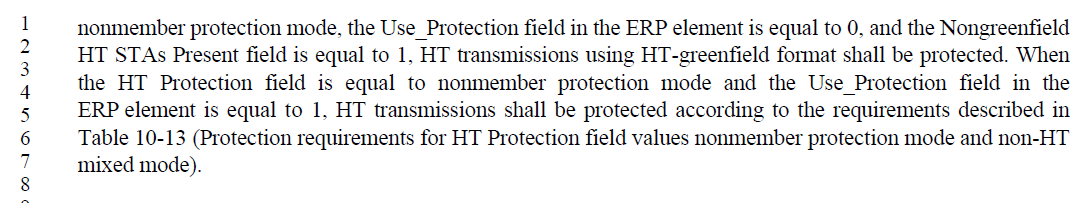
RESOLUTION

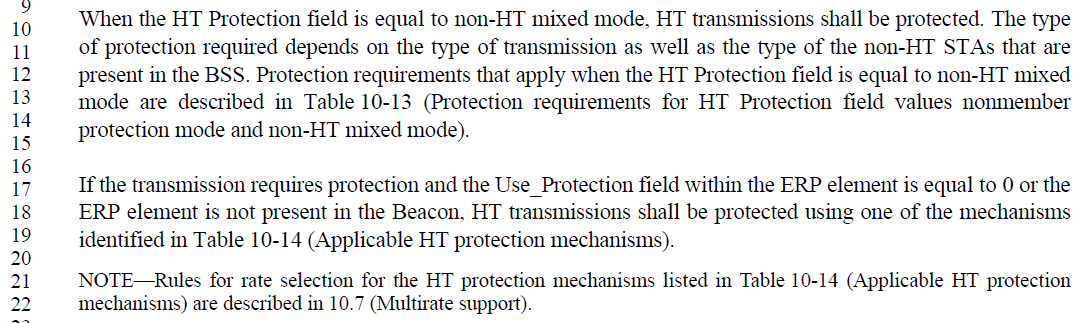
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 266 | 10.26.3.1 |  |  |  | "If the transmission requires protection and the Use\_Protection field within the ERP element is equal to 0 or the ERP element is not present in the Beacon, HT transmissions shall be protected using one of the mechanisms identified in Table 10-14 (Applicable HT protection mechanisms)." appears to overlap the first row of Table 10-13---Protection requirements for HT Protection field values nonmember protection mode and non-HT mixed mode, Use\_Protection = 0 or ERP element is not present (HT Protection field equal to non-HT mixed mode) | Delete the cited text |

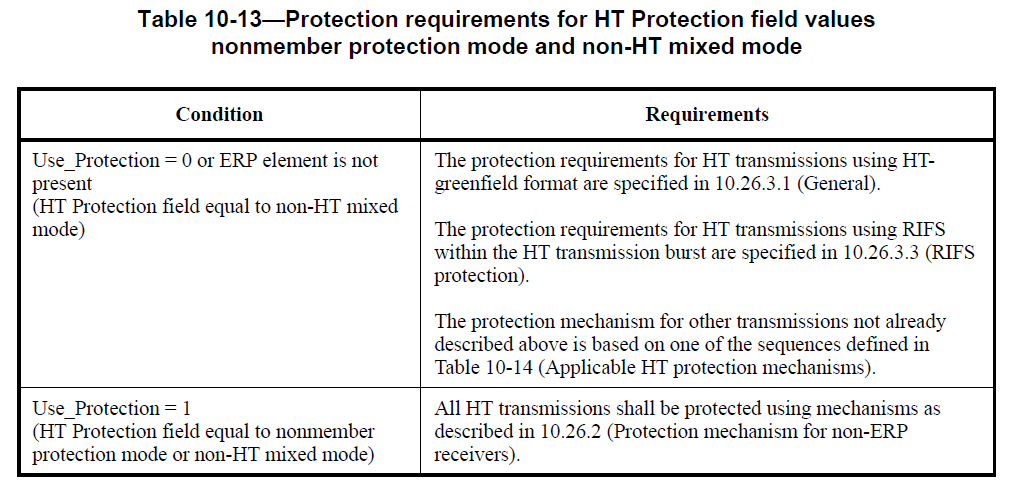
Discussion

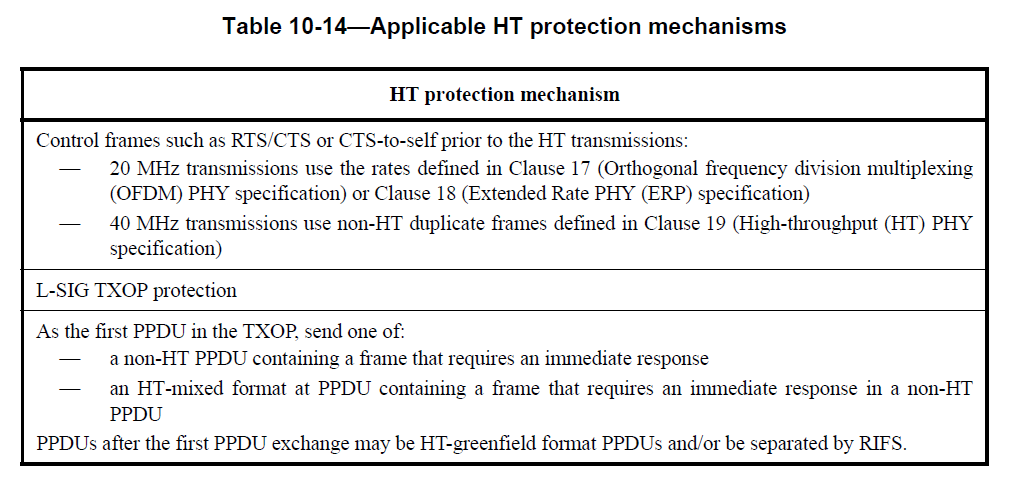
Note – the cited text is at line 17, below (from P1550 of REVmd D0.1.)











Is the Table 10-13 normative, so that the requirement to refer to Table 10-14 is mandatory, without text saying so? Even if so, is it helpful to have the text explaning the intent of the application of the third paragraph in the Table 10-13 entry?

From Waikoloa F2F: The Tables are normative. This text was moved into a table relatively recently (REVmc) because the text version had become cumbersome. Look for volunteers to help craft resolution.

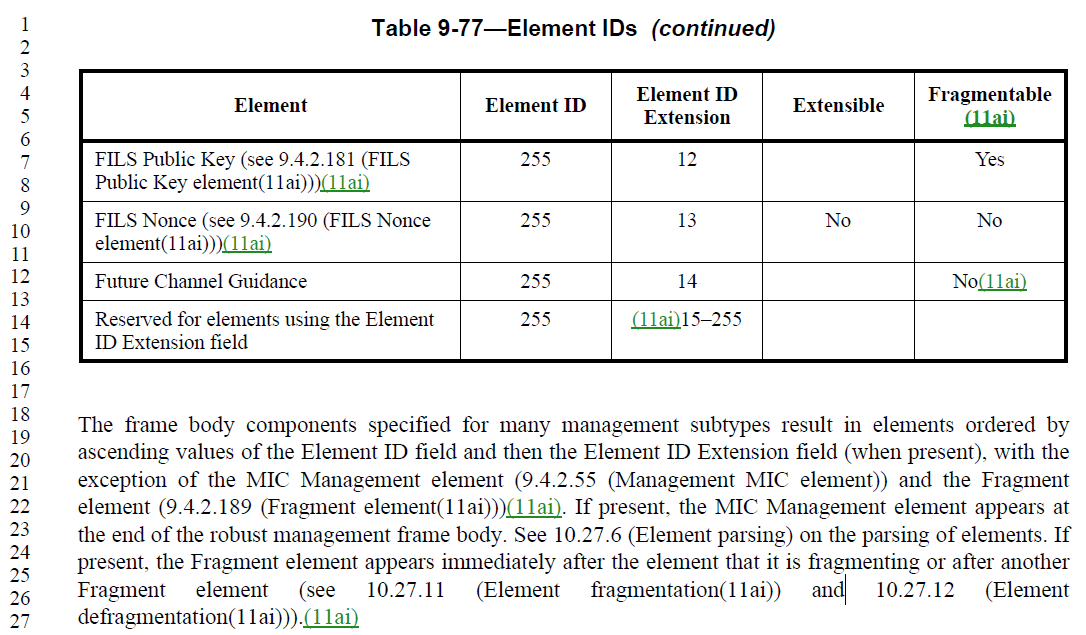
Recommendation: Since the tables are normative, and the intention was to move the text into the table form, it seems the cited text is a left-over that could be deleted.

RESOLUTION

Accepted.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 283 | 9.4.2.1 |  |  |  | "The frame body components specified for many management subtypes result in elements ordered by ascending values of the Element ID field and then the Element ID Extension field (when present), with the exception of the MIC Management element (9.4.2.55 (Management MIC element)). If present, the MIC Management element appears at the end of the robust management frame body." There are other exceptions, e.g. Quiet and TPC Report in beacons, VSIEs, AMPE. There is no general rule; you have to look at each frame's format as specified | Delete the cited text |

Discussion



Propose: Accepted. (Editor, the cited text is at P843L18 in D0.1.) But, discuss with TG.

From Waikoloa F2F: The commenter’s remarks appear to be accurate. However, this sentence has been there a long time, and is probably useful, even if not necessary. Suggest more research into what is not in order, and list them. Needs submission.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 290 | 9.4.1.53 |  |  |  | "indicates the maximum number of spatial streams that the STA can receive" --- it only indicates an upper limit on the number of SS, since other things might further limit the NSS that the STA can receive (e.g. SMPS, Rx Highest Supported Long GI Data Rate). This issue was originally pointed to me by Matt FISCHER | Add "an upper limit on" after "indicates" in the cited text (2 instances) |

Discussion

Isn't a "maximum number" already an "upper limit"?

From Waikoloa F2F: Confusion here about the negotiated maximum number, which might be higher than any supported number, versus knowing there is some number of streams that will work. This value is supposed to represent the number of SSs the STA can support, in some mode of operation.

Recommendation: Consensus seems to be that the text says what it means, currently. Need help crafting the reject reason.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 326 |  |  |  |  | An RTT is the time between a signal going out and coming back. It includes any processing time at the other side. The spec uses "RTT" to mean the total time of flight, not the RTT | Delete the RTT definition from 3.4 and instead add "TOF time of flight" At 83.58 change "round trip time (RTT)" to "distance" At 1771.20 change "an RTT" to "a two-way TOF" At 1772.28 change "The round trip time (RTT)" to "The two-way TOF" and change "RTT" to "TOF" in the equation At 3598.21 change "RTT" to "two-way TOF" (all references are to mc/D5.0) |

Discussion

According to Wikipedia :) the current use of RTT is correct; the term does not include processing delay. But, many definitions are based on an assumption of zero delay at the far end (radar echo, etc.), and generally are written so that far-end delay would be included.

To change the term to time of flight (TOF) results in the need to talk about a "two-way" TOF (which isn't as well-known a phrase, although it is used commonly for two-way ranging), and somewhat more cumbersome wording.

In REVmd Draft, RTT is explicitly defined in equation 11-5, to not include the far-end delay, so this is an issue with "common belief" definition of the term, and not a technical issue with the spec. Thus referring to TGm for discussion.

From Waikoloa: Some discussion of pros and cons of making this completely clear. But, in general, introducing two-way TOF was agreed to be complicated, and the current text is not technically incorrect. Reject.

RESOLUTION

Rejected. The 802.11 definition of RTT is provided in equation 11-5, consistent with the usage in the Standard. There is no technical error.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 337 | 10.21.3 | 1481 | 63 | 11-17-0950 | There should be global client operating classes that uniquely specify highest bandwidth offered across all channels, and when present in probe, (re)association requests mean that Supported Channels element(s) is/are not present. For example, a single new 20 MHz global operating class signals 20 MHz global classes 115, 118, 121, 124 and 125 are all supported across channels 36-165. A single new 40 MHz global operating class signals global 20 MHz classes and 40 MHz global classes 115, 117, 119, 120, 122, 123, 126 and 127 are all supported across channels 36-165. A single new 80 MHz global operating class signals global 20 MHz, 40 MHz and 80 MHz global class 128 are all supported across channels 36-165. A single new 160 MHz global operating class signals global 20 MHz, 40 MHz, 80 MHz and 160 MHz global classes 129 and 130 are all supported across channels 36-165. | Commenter will contribute draft text if there is interest in operating super-classes to reduce the time taken in multi-band probe, association and channel switch processes. |

Discussion

MAC: 2017-08-18 14:24:28Z: Reviewed 11-17/950r1. Feedback is needed.

RESOLUTION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Submission | Comment | Proposed Change |
| 362 | 9.3.3.7 | 741 | 35 |  | The Association Response frame contains the Status Code field but not the Reason Code field. The description in the table is mixed up. | Change "Reason Code" in line 35 to "Status Code". |

Discussion

A search for "REJECTED\_WITH\_SUGGESTED\_BSS\_TRANSITION" finds more places with the error in Reassoc's table, and also in text in 11.3.8. Might need global search for "frame with/has … Reason Code".

From Waikoloa F2F: Generally agree. Noted that CID 363 is very similar. Agree with resolution for CID 363. CID 362 should also be done, similarly. Needs volunteer to help search for other occurrances.

RESOLUTION