IEEE P802.11
Wireless LANs

|  |
| --- |
| CR for OPS |
| Date: 2018-07-09 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Laurent Cariou |  |  |  | laurent.cariou@intel.com |

Abstract

This document provides CR for CIDs: 15588, 15826, 15833, 15834, 15838, 16151, 16442, 16594, 16739

1. **Introduction**

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. The introduction and the explanation of the proposed changes are not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause Number(C)** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 16963 | 27.14.2 | 363 | please clarify what it means to have "the target transmission time aligns with the transmission time of a FILS Discovery frame", 10ns, 10ms? Maybe it is more clear to define a variable for such alignment. | define a variable for the tolerance of timing difference between the target transmission time of a OPS frame and the target transmission time of a FILS Discovery frame. | Revised – CR for CID 15171 already clarified that the target transmission time only needs to be closely aligned.  |
| 15588 | E.1 | 675 | The PAR states that the frequency of operation is between 1 and 7.125 GHz, yet the maximum frequency usage according to Annex E is 7.115 GHz. | Consider moving the 5.94 GHz Channel starting frequency in Annex E to 5.95 GHz so as to have 7.125 GHz be the maximum frequency of operation | Rejected – The commenter failed to identify an issue. |
| 15826 | 27 | 253 | 6GHz APs will be multi-band APs operating also at 2.4/5GHz. Most STAs will also be tri-band capable. Load balancing/traffic steering between bands is the most powerful tool to limit the load at 6GHz and ensure QoS, high throughput or low latency. BTM requests, neighbor reports that are in the spec right now provide most of the tools to enable efficient load balancing. What is however missing is the description of the policy that a multi-band collocated AP is applying across it's different bands to inform the STAs of which traffic is recommended in which band, and to enable a very simple admission control per band. A policy should then be defined for a multi-band collocated AP, and this would define how a STA should operate with this AP, before association and after association. This policy could say that there are no restrictions (default for main deployments) or would enable specific modes where a realistic admission control for the 6GHz band is in place and where associaiton at 6GHz is allowed only after receiving a BTM request for instance, or is allowed only through pre-association at 6GHz through the collocated APs at 2.4 and 5GHz. | Define a multi-band collocated AP operation policy, which defines different modes for how to interact with this AP across different bands, before and after association (for instance association allowed only after receiving BTM request)... If this element is not included, interaction with the 6GHz AP should be exactly the same as today: no restrictions. | Reject – no sufficient support on the adoption of this concept. |
| 15833 | 27 | 253 | Some channels at 6GHz are likely to be disallowed for operation because of the presence of incumbents. APs should have the ability to inform the STAs of which channels are disallowed in their location. This way, the STAs performing scanning at 6GHz, which will be needed anyway to detect 6GHz-only APs such as soft APs, will only scan the channels on which there could be operating APs and will not spend time and energy on channels that are not allowed. | Define an element or frame carrying the list of channels that are allowed in the current location, and possibly the regulatory power limits on the different bands. Define a way for a STA to query such list. | Reject – the task group need to have more visibility on the regulatory rules before discussing this |
| 15834 | 27 | 253 | 6GHz APs will be multi-band APs operating also at 2.4/5GHz and full discovery should be enabled at 2.4 and 5GHz. Beacons at 2.4 and 5GHz shall then carry the discovery elements (neighbor report or multiband element) describing the collocated AP at 6GHz. If the information is not complete, there should be a way for a STA to send a probe request to the 2.4/5GHz AP and ask for information related to the 6GHz collocated AP. OCT is in the spec today to achieve this and is the straighforward solution and should be used for this purpose. | Define a way for a STA to receive a probe response carying information on a collocated 6GHz AP, when sending a probe request at 2.4 or 5GHz to the collocated APs. OCT is the solution in the 802.11 spec for this and should be used. | Revised – apply the changes as defined in doc 18-1227r13 |
| 15838 | 27 | 253 | 6GHz APs will be multi-band APs operating also at 2.4/5GHz. Admission control is crutial to low latency and QoS and is currently too complex and never implemented. Multi-band operation and the new 6GHz band is a great opportunity to define a very simple multi-band admission control. | Define a multi-band admission control mechanism, especially for multi-band collocated APs that operate at 6GHz and 2.4/5GHz. | Rejected – current admission control can be used. |
| 16151 |  |  | Per 802.11 convention, there should be no "shall" in Clause 9 except the one in the baseline at the start | Change "20 MHz only STA shall set to 0." to "A 20 MHz only STA sets this to 0." at 162.50. Move " The SNR per subcarrier computationshould be done on at least 4 subcarriers in a 26-tone RU." to Clause 27 (this is behaviour not format); also "If anMSDU or A-MSDU is fragmented and is not carried in an A-MPDU, then the queue size value may remainconstant in all fragments even if the amount of queued traffic changes as successive fragments are sent.". In 9.6.8.36 delete "The FILS Discovery frame may include a TIM element" and instead change the baseline table/figure that defines the contents of this frame to show an optional TIM element. Ditto "The FILS Discovery frame may include a broadcast TWT element" | Revised – apply the changes as proposed in document 19-0177r0 |
| 16442 | 28.3.22.2 | 579 | Do 11ax device operate as independent BSSs in the channels cited here starting at 5.940? Or is there a couple/colocation to operation in a 5 GHz or 2.4 GHz band? | Specify whether the operation in the 6 GHz band is as a BSS that is independent of any BSS operation in a 5 GHz band. | Revised – apply the changes as proposed in doc 18-1227r13 and 18-1471r4 |
| 16594 | 675 | 15 |

|  |  |
| --- | --- |
| In 9.4.1.46, the band ID indication currently does not have 6 GHz indication. Since 6 GHz is enabled for 11ax STA, an additional entry shall be added for 6 GHz support. | Add additional entry for 6 GHz in Band ID element. |

 | Add additional entry for 6 GHz in Band ID element. | Revised - this change was made already in REVmd. |
| 16739 | 9.3.1.23.8 | 108 | NDP feedback currently supports only associated STAs, and doesn't provide an opportunity for non-associated STAs to request a probe response, which means a large amount of probe requests and probe response messages will be transmitted, lowering the system efficiency, sometimes significantly. | "Add 1 bit from 'reserved' for 'Request for Probe Response'.Change Eq. 9-ax1 to N\_STA=18\*2^BW\*(Multiplexing\_Flag)-2^BW\*'Request\_for\_Probe\_Response'" | Rejected – the commenter didn’t come with a proposal for this comment. The group does not have enough information to accept this comment. |

1. **Proposed changes**

***11ax Editor: Modify 9.6.7.36 FILS Discovery frame as follows:***

**9.6.7.36 FILS Discovery frame format**

**[…]**

The TIM element is defined in 9.4.2.5 (TIM element). It is included for operation as defined in 27.14.3 (Opportunistic power save).

The TWT element is defined in 9.4.2.199 (TWT element). It is included with the Broadcast field set to 1 to aid an unassociated STA determine the target transmission time of Trigger frames that contain at least one User Info field allocating RA-RUs for unassociated STAs (see 27.5.5.5 (Additional considerations for unassociated STAs) and 27.8.3.1 (General)).(18/1812r2, #Ed)

**9.4.1.67 HE CQI Report field**

***11ax Editor: Modify the following sentence as follows:***

The SNR per subcarrier computation is recommended to be done on at least 4 subcarriers in a 26-tone RU.