IEEE P802.11
Wireless LANs

Abstract

This submission proposes resolutions for the following CIDs:

19349, 20096, 20097, 19791, 19790, 20126, 19211, 19296, 19528, 19810, 20092, 20098, 20091, 19617

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: wording changes to make the text more consistent.
* Rev 2: deferred 20092 based on request. Keep “adjusted” as original text.
* Rev 3: editorial changes
* Rev 4: updates on comment resolutions for CID #20126 and #20092

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| 11be D4.0 CR for 35.3.19 |
| Date: 2023-09-01 |
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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 TGbe D3.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D3.0 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

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

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| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 19349 | Brian Hart | 35.3.19.1 | **571.51** | "The primary link is the same for all non-AP MLDs." in NOTE 2 is dangerous since it implies a normative behavior without citing any normative behavior | Since the normative behavior seems to come from the previous para, try the following (starting from the prev para): "An NSTR mobile AP MLD shall designate one of the links of an NSTR link pair as the primary link for the BSS. The other link of the NSTR link pair is the nonprimary link for the BSS. ... NOTE 2 How to determine ..." (i.e., delete the first sentence in note 2 since it's no longer needed. | Revised. Agree with the commenter in general.TGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 19349. |
| 20096 | Kaiying Lu | 35.3.19.1 | 571.51 | Change to "The primary link is the same for all associated non-AP MLDs with an NSTR mobile AP MLD." | As in comment. | Revised. Agree with the commenter in general.TGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 19349. |
| 20097 | Kaiying Lu | 35.3.19.1 | 571.51 | Change to "How does an NSTR mobile AP MLD determine the primary link for the NSTR link pair is implementation related. The AP MLD may" | As in comment. | Revised. Agree with the commenter in general.Some texts in NOTE 2 imply a normative behavior. Changed them to normative text.TGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 20097. |
| 19791 | Abhishek Patil | 35.3.19.1 | 571.44 | The first two sentences in the 4th paragraph are a duplicate of the first two sentences in the 2nd paragraph. | Delete the cited sentences. | Revised. Agree with the commenter in general.TGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 19791. |
| 19790 | Abhishek Patil | 35.3.19.1 | 571.16 | There is one AP (link) that is designated as the primary link and that can't be disabled (via T2LM) or removed (via ML Reconfig). As a result, the primary link never changes regardless of whether the nSTR mobile AP MLD is operating with 1 link or 2 links. Therefore, the if condition can be deleted. | Replace "If an NSTR mobile AP MLD .... , one AP shall be ..." with "In an NSTR mobile AP MLD, one AP shall be ..." | Revised. Agree with the commenter in general.TGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 19790. |
| 20126 | Peshal Nayak | 35.3.19 | 571.35 | NSTR Mobile AP MLD may want to change the primary link designation due to a number of reasons. | Provide a procedure to change primary link designation for NSTR Mobile AP MLD | Revised.Clarify that the primary link designation change can be achieved by using channel switching. It is compatible for legacy device as well.TGbe editor to make the changes shown in 11-23/1573r5 under all headings that include CID #20126 |
| 19211 | Ryota Yamada | 35.3.19.3 | 573.21 | The title of 35.3.19.3 and the title of 35.3.11 should be aligned.  | Please replace the title of 35.3.19.3 with "NSTR mobile AP MLD multi-link procedures for (extended) channel switching and channel quieting | Accepted |
| 19296 | John Wullert | 35.3.19.3 | 573.48 | Typo: "assoiated" should be "associated" | As in comment | Accepted |
| 19528 | Sigurd Schelstraete | 35.3.19.3 | 573.48 | Typo: "assoiated" |  | RevisedTGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 19296 |
| 19810 | Abhishek Patil | 35.3.19.3 | 573.48 | Fix typo | Change "assoiated" to "associated" | Accepted. |
| 20092 | Kaiying Lu | 35.3.19.3 | 573.21 | Clarify the simulatenous channel switch procedure of primary link and non-primary link | The commenter will propose the text changes. | RevisedTGbe editor to make the changes shown in 11-23/1573r5 under all headings that include CID #20092. |
| 20098 | Kaiying Lu | 35.3.19.3 | 573.41 | It is inconsistent with the rules defined fot the Switch Time field in the Max Channel Switch Time element. Clarify it. | The commenter will propose the text changes. | RevisedTGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 20098. |
| 20091 | kaiying Lu | 9.4.2.216 | 239.36 | Since there are no Beacon frames transmitted on the non-primary link, the Switch Time field in the Max Channel Switch Time element should be clarified for nonprimary link channel switch case. | The commenter will propose the text changes. | RevisedTGbe editor to make the changes shown in 11-23/1573r2 under all headings that include CID 20091. |
| 19617 | Mark Hamilton | 3.2 | 59.03 | Does an NSTR AP MLD always have exactly one NSTR pair? | Replace "one" with "one or more" and make "pair" plural | Rejected.The comment fails to identify a technical issue and is asking a question. The group has agreed that an NSTR mobile AP MLD always has exactly one NSTR link pair. |

*TGbe editor: Change Clause 35.3.19.1 as follows (track change on):*

**35.3.19.1 General**

…

(#19791)…

An NSTR mobile AP MLD shall designate one of the links of an NSTR link pair as the primary link of the AP MLD (#19349). The other link of the NSTR link pair is the nonprimary link of the AP MLD(#19349). The primary link shall not be disabled or removed and the nonprimary link may be disabled or removed(#19790, 19791). (#20126) The NSTR mobile AP MLD shall schedule for transmissions of Beacon and Probe Response frames and group addressed Data frames only on the primary link.

NOTE 2—(#19349) How to determine a primary link is implementation related. (#20126)Changing the designation of the primary link is achieved by performing the channel switch procedure so that the associated STAs on the current primary link can switch to the new primary link.

(#20097)An NSTR mobile AP MLD may change the operating channel for either the primary or nonprimary link or both(#20092) by following the procedures described in 11.8.8 (Selecting and advertising a new channel), 11.8.9 (Channel Switch Announcement element operation), and 35.3.19.3 (NSTR mobile AP MLD multi-link procedures for (#19211)(Extended) channel switching and channel quieting). An NSTR mobile AP MLD that intends to swap the operating channel used for its primary and nonprimary links respectively shall simultaneously perform the (extended) channel switch operation on both links.

…

*TGbe editor: Change Clause 35.3.19.3 as follows (track change on):*

**35.3.19.3 NSTR mobile AP MLD multi-link procedures for (extended)channel switching (#19211)and channel quieting**

Multi-link procedures for channel switching, extended channel switching, and channel quieting for an AP affiliated with an NSTR mobile AP MLD on the nonprimary link follow the same rules defined in 35.3.11 (Multi-link procedures for (extended) channel switching and channel quieting) with the following exceptions:

—An AP affiliated with an NSTR mobile AP MLD on the primary link may schedule channel switching and quiet intervals for the AP affiliated with the same NSTR mobile AP MLD on the nonprimary link by including the corresponding elements in the STA Profile field of the Per-STA Profile subelement corresponding to the AP on the nonprimary link carried in Beacon frames and Probe Response frames that it transmits on the primary link.

—The timing fields in the Channel Switch Announcement element, the Extended Channel Switch Announcement element, the Quiet element, and the Quiet Channel element shall be applied in reference to the most recent TBTT and BI indicated in the corresponding element(s) of the AP operating on the primary link.

—The Switch Time field in the Max Channel Switch Time element included in the Per-STA Profile subelement corresponding to the AP operating on the nonprimary link indicates an adjusted estimated time after which the corresponding AP resumes BSS operation on the new channel/class (see 9.4.2.216 (Max Channel Switch Time element)).(#20098)

NOTE—The TBTT and the BI are not defined for a BSS of an AP operating on the nonprimary link. This is because the AP does not send a Beacon frame for its BSS.

(#20092)When an NSTR mobile AP MLD simultaneously switches or swaps the operating channels for its primary and nonprimary links, the first Beacon that does not include the Max Channel Switch Time element transmitted by the AP operating on the new channel/class of the primary link indicates that the affected/reported AP operating on the nonprimary link has resumed the BSS operation on the new channel/class.

(#20092) For an NSTR mobile AP MLD, if only the affiliated AP on the nonprimary link is performing channel switch, after the estimated target switch time, a non-AP MLD associated(#19296) with the NSTR mobile AP MLD shall be able to determine that the AP (affected/reported AP) operating on the nonprimary link is in the process for switching its operating channel/class to the new channel/class when the most recently received per-STA profile that is corresponding to the nonprimary link includes the Max Channel Switch Time element and does not include the (Extended) Channel Switch Announcement element. The non-AP MLD shall be able to determine that the affected/reported AP operating on the nonprimary link has resumed the BSS operation when the most recently received per-STA profile corresponding to that affected/reported AP stops including the Max Channel Switch Time element.

**9.4.2.216 Max Channel Switch Time element**

**…**

When the Max Channel Switch Time element is carried in a Basic Multi-Link element, in the Per-STA Pro­file subelement corresponding to a reported AP that is not affiliated with an NSTR mobile AP MLD(#20091):

—until the last Beacon frame is sent on the current channel of the reported AP, the Switch Time field indicates the maximum time delta between the time the last Beacon frame is transmitted by the reported AP in its current channel and the expected time of the first Beacon frame in its new channel, expressed in TUs.

—after the last Beacon frame is transmitted on the current channel of the reported AP, the Switch Time field indicates the estimated time delta, expressed in TUs, between the time the frame carrying the Basic Multi-Link element containing the Max Channel Switch Time element is transmitted by the reporting AP and the expected time of the first Beacon in the new channel by the reported AP (see 35.3.11 (Multi-link procedures for (extended) channel switching and channel quieting)).

(#20091)When the Max Channel Switch Time element is carried in a Basic Multi-Link element, in the Per-STA Pro­file subelement corresponding to a reported AP that is affiliated with an NSTR mobile AP MLD:

—the Switch Time field indicates the estimated time delta, expressed in TUs, between the time the frame carrying the Basic Multi-Link element is transmitted by the reporting AP and the expected time that the reported AP resumes BSS operation on the new channel/class (see 35.3.19.3 (NSTR mobile AP MLD multi-link procedures for (extended) channel switching and channel quieting)).