IEEE P802.11
Wireless LANs

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| CR of NSTR Capability update |
| Date: 2022-01-04 |
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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 TGbe Draft. The introduction and the explanation of the proposed changes are not part of the adopted material.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause**  | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 4832 | Dibakar Das | 35.3.14.4 | 276.36 | Define how any STR/NSTR capability changes are signaled following a Channel switch operation | As in comment. | RevisedThe frame format of NSTR Capability Update frame and the NSTR status update notification procedure are added.TGbe editor to make the changes with the CID tag 4832 in doc 22/0026r2 |
| 5765 | Laurent Cariou | 35.3.14.4 | 276.36 | Clarify what can be changed and how this would be changed. | as in comment | RevisedThe frame format of NSTR Capability Update frame and the NSTR status update notification procedure are added.TGbe editor to make the changes with the CID tag 5765 in doc 22/0026r2 |
| 6315 | Ming Gan | 35.3.14.4 | 276.37 | Some info is missing, for example, when does the non-AP MLD inform the AP MLD about the ability change to perform STR? Is there notification procedure? | as in the comment | RevisedThe frame format of NSTR Capability Update frame and the NSTR status update notification procedure are added.TGbe editor to make the changes with the CID tag 6315 in doc 22/0026r2 |
| 7629 | Tomoko Adachi | 35.3.14.4 | 276.37 | "The non-AP MLD may use a Management frame on any enabled link to inform the AP MLD about the ability change to perform STR." Which Management frame is used? The NSTR link pair information is in the Basic variant Multi-Link element and the element is carried only in (Re)Association Request when it's sent from a STA affiliated with a non-AP MLD. A new(?) Action frames seems to be needed. Or extend the EHT OM Control field. And why is it here only talking about the case when the change is to STR? When the channel change introduces an NSTR link pair, it has to be informed. | As in comment. | RevisedThe frame format of NSTR Capability Update frame and the NSTR status update notification procedure are added.TGbe editor to make the changes with the CID tag 7629 in doc 22/0026r2 |
| 8195 | Yunbo Li | 35.3.14.4 | 276.37 | "The non-AP MLD may use a Management frame on any enabled link to inform the AP MLD about the ability change to perform STR". The spec doesn't specify which Management frame it is. | Please specify which Management frame is it, and provide the frame format and procedure. | RevisedThe frame format of NSTR Capability Update frame and the NSTR status update notification procedure are added.TGbe editor to make the changes with the CID tag 8195 in doc 22/0026r2 |
| 5672 | Julien Sevin | 35,3,14,3 | 274.60 | How to indicate a modification of the NSTR bitmap in operation time | As in comment | RevisedThe frame format of NSTR Capability Update frame and the NSTR status update notification procedure are added.TGbe editor to make the changes with the CID tag 5672 in doc 22/0026r2 |

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

Discussion:

Should the NSTR Capability Update frame be an EHT Action frame or a Protected EHT Action frame?

Reason for defining it as an EHT Action frame: The initial NSTR status is carried in an Association Request frame. Both the EHT Action frame and Association Request frame are not protected.

Reason for defining it as a Protected EHT Action frame: Can be encrypted.

The proposed text is prepared based on an EHT Action frame as an example, if the task group prefers a Protected EHT Action frame, I will change the text accordingly.

SP: Which option do you prefer to define the NSTR Capability Updated frame?

Opt A: an EHT Action frame

Opt B: a Protected EHT Action frame

Opt C: Abstain

1. **Proposed spec text**

**Opt A: define the NSTR Capability Updated frame an EHT Action frame**

***TGbe editor: Modify the Table 9-623a in 9.6.34.1 (EHT Action field) as follows:***

**Table 9-623a—EHT Action field values**

|  |  |
| --- | --- |
| Value | Meaning |
| 0 | EHT Compresed beamforming/CQI |
| 1 | EML Operating Mode Notification |
| 2 | NSTR Capability Update (#4832, 5765, 6315, 7629, 8195, 5672) |
| 3-255 | Reserved |

***TGbe editor: add 9.6.34.4 (NSTR Capability Update frame format) as follows:***

**9.6.34.4 NSTR Capability Update frame format** (#4832, 5765, 6315, 7629, 8195, 5672)

The NSTR Capability Update frame is transmitted by a STA affiliated with a non-AP MLD to an AP affliated with the associated AP MLD to report the updated status of the NSTR capabilities of the non-AP MLD. The Action field of an NSTR Capability Update frame contains the information shown in Table 9-623c1 (NSTR Capability Update frame Action field values).

**Table 9-623c1—NSTR Capability Update frame Action field values**

|  |  |
| --- | --- |
| Value | Meaning |
| 1 | Category |
| 2 | EHT Action |
| 3 | Basic Multi-Link |

The Category field is defined in 9.4.1.11 (Category values).

The EHT Action field is defined in 9.6.34.1 (EHT Action field).

The Basic Multi-Link element, definded in 9.4.2.312.2 (Basic Multi-Link element), includes an NSTR Indication Bitmap subfield(s) to report the NSTR capabilities of the reporting non-AP MLD.

-------------End of Opt A.------------------------

**Opt B: define the NSTR Capability Updated frame a Protected EHT Action frame**

***TGbe editor: Modify the Table 9-623d in 9.6.35.1 (Protected EHT Action field) as follows:***

**Table 9-623d—Protected EHT Action field values**

|  |  |  |
| --- | --- | --- |
| Value | Meaning | Time priority |
| 0 | TID-To-Link Mapping Request | No |
| 1 | TID-To-Link Mapping Response | No |
| 2 | TID-To-Link Mapping Teardown | No |
| 3 | EPCS Priority Access Enable Request | No |
| 4 | EPCS Priority Access Enable Response | No |
| 5 | EPCS Priority Access Teardown | No |
| 6 | NSTR Capability Update (#4832, 5765, 6315, 7629, 8195, 5672) | No |
| 7-255 |  |  |

***TGbe editor: add 9.6.35.8 (NSTR Capability Update frame format) as follows:***

**9.6.35.8 NSTR Capability Update frame format** (#4832, 5765, 6315, 7629, 8195, 5672)

The NSTR Capability Update frame is transmitted by a STA affiliated with a non-AP MLD to an AP affliated with the associated AP MLD to report the updated status of the NSTR capabilities of the non-AP MLD. The Action field of an NSTR Capability Update frame contains the information shown in Table 9-623k (NSTR Capability Update frame Action field values).

**Table 9-623k—NSTR Capability Update frame Action field values**

|  |  |
| --- | --- |
| Value | Meaning |
| 1 | Category |
| 2 | Protected EHT Action |
| 3 | Basic Multi-Link |

The Category field is defined in 9.4.1.11 (Category values).

The Protected EHT Action field is defined in 9.6.35.1 (EHT Action field).

The Basic Multi-Link element, definded in 9.4.2.312.2 (Basic Multi-Link element), includes an NSTR Indication Bitmap subfield(s) to report the NSTR capabilities of the reporting non-AP MLD.

-------------End of Opt B.------------------------

***TGbe editor: Modify the paragraphes in 35.3.16.2 (Multi-link device capability signaling) as follows:***

**35.3.16.2 Multi-link device capability signaling**

The ability of a non-AP MLD to perform STR operation on a pair of setup links may change after multi-link setup. The non-AP MLD may transmit an NSTR Capability Update frame on any enabled link to inform the associated AP MLD about a change in the ability to perform STR operation. (#4832, 5765, 6315, 7629, 8195, 5672)

NOTE 2—The ability might change due to an AP switching BSS operating channels of one or more of the setup links with the non-AP MLD，or a STA affiliated with a non-AP MLD changing its channel width through the OMI procedure. (#4832, 5765, 6315, 7629, 8195, 5672)

In the Basic variant Multi-Link element of an NSTR Capability Update frame, Link ID Info Present, BSS Parameters Change Count Present, Medium Synchronization Delay Information Present, EML Capabilities Present, and MLD Capabilities Present subfields in the Multi-Link Control field are set to 0; the Complete Profile, STA MAC Address Present, Beacon Interval Present, and DTIM Info Present subfields in the STA Control field are set to 0. (#4832, 5765, 6315, 7629, 8195, 5672)

The AP MLD shall update the NSTR capability status of its associated non-AP MLD after receiving an NSTR Capability Update frame from the non-AP MLD. If the NSTR statuses of some link pairs are not included in the NSTR Capability Update frame, the AP MLD does not update the NSTR statuses of these link pairs. (#4832, 5765, 6315, 7629, 8195, 5672)

***End of change***