IEEE P802.11
Wireless LANs

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| Proposed Draft Text for MLO: Soft AP MLD Operation |
| Date: 2021-02-20 |
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Abstract

This submission proposes draft text for MLO: Soft AP MLD Operation based on the following portions of the SFD:

1. Move to define mechanisms to support the operation of a Non-STR AP MLD in R1. The mechanisms are limited to instantiate a Non-STR Non-AP MLD as a Soft AP that could utilize all its links under TBD conditions. The exact language to govern such scope is TBD.

[Motion 125]

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Updated version based on received comments.
* Rev 2: Modified the definition parts and some wording changes
* Rev 3: Removed the last 3 paragraphs
* Rev 4: Wording changes
* Rev 5: Changed the definition part
* Rev 6: Changed the soft AP MLD definition part
* Rev 7: Changed the definition part by removing the co-located set and physical limitations
* Rev 8: Removed the MIB dot11NSTRSoftAPMLDActivated
* Rev 9: Changed the definition of soft AP MLD to TBD descriptions
* Rev10: Changed the definition of soft AP MLD back to r8 version and added “in a battery powered device”.
* Rev11: Changed the definition of soft AP MLD
* Rev12: Changed the definition of soft AP MLD
* Rev13: Removed the definition part due to need of further discussion. Recovered some texts in subclause “NSTR Soft AP MLD Operation” from Rev0.
* Rev14: Removed the paragrphs except the first paragraph in subclause “NSTR Soft AP MLD Operation”. Wording changes on the first paragraph based on comments.
* Rev15: Replaced the whole text of the previous version
* Rev16: Wording changes and remove the text added in 36.1.1
* Rev17: Incorporated some comments collected during the conference call.
* Rev18: Editorial changes according to comments during the call
* Rev19: Added text in capability signalling to limit that soft AP MLD in R1 shall restrict the number of links to 2.

***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).***

***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.***

***Insert new Clause 33 following Clause 32 as follows:***

35. Extremely High Throughput (EHT) MAC specification

35.3 Multi-Link Operation

35.3.15 NSTR Soft AP MLD Operation

35.3.15.1 General

An NSTR soft AP MLD is an AP MLD which sets dot11SoftAPMLDImplemented to true and has one NSTR pair of links with the following restrictions:

* Each AP affiliated with a soft APis not required to support all the EHT AP mandatory features
* Support of MU operation is optional for the APs affiliated with a soft AP MLD
* Support of two or more spatial streams is optional for the APs affiliated with a soft AP MLD
* Only one AP of the affiliated APs operating in an NSTR pair of links sends Beacon and Probe Response frames
* The soft AP MLD is in a mobile device that is typically battery-powered
* Each AP affiliated to a soft AP MLD has different MAC address

An NSTR soft AP MLD shall designate one link of an NSTR link pair as the primary link to transmit Beacon and Probe Response frames. The other link of the NSTR link pair is the non-primary link.

STAs affiliated with a non-AP MLD that is associated with an NSTR soft AP MLD and APs affiliated with an NSTR soft AP MLD shall follow the procedure defined in 35.3.13.6 “Start time sync PPDUs medium access” when intending to transmit in the non-primary link with the following additional constraints.

* A STA affiliated with the non-AP MLD may initiate a PPDU transmission to its associated NSTR soft AP in the non-primary link only if the STA affiliated with the same MLD in the primary link is also initiating the PPDU as a TXOP holder with the same start time.
* An AP affiliated with the NSTR soft AP MLD may initiate a PPDU transmission to its associated non-AP STA in the non-primary link only if the AP affiliated with the same NSTR soft AP MLD in the primary link is also initiating the PPDU as a TXOP holder with the same start time.
* A TXOP responder may send a response independent of the condition of the other link of the NSTR link pair.

35.3.13.4 Capability signaling

***TGbe editor: Please add the following text under this subclauses as follows:***

If dot11EHTBaselineFeaturesImplementedOnly equals to ture,

* An NSTR soft AP MLD shall set the Maximum Number Of Simultaneous Links subfield in the Basic variant Multi-Link element to a value equals to 1.
* An NSTR soft AP MLD shall set the NSTR Link Pair Present subfield value to 1 in a Per-STA Control field that corresponds to Link ID *i* (where 0 ≤*i* <15) .

**Straw Poll: Do you support to incorporate the proposed draft text in this document 11-20/1407r19 to the TGbe Draft 0.4?**

**Result: Yes/No/Abstain**