IEEE P802.11
Wireless LANs

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| LB233 CR ER Beacon |
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Abstract

This submission proposes resolutions of comments received from TGax LB233.

(The proposed change is based on TGax Draft 3.0.)

* CIDs: 16123, 16091, 16925, 16152, 15127 (5 CIDs)

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. This introduction is 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** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 16123 | 376.23 | 27.16.5 | "Protection of transmission in ER BSS is out of scope of this specification." is a cop-out and violates coexistence assurances | Delete this subclause | Rejected- In 802.11ax PAR, it requires to support the use case of outdoor deployment and improve robustness transmission in outdoor propagation environments. 802.11ax simulation scenario [11-14-0980-16] defines the simulation and evalution cases for outdoor in the case 4 and 4a with coverage of inter-AP space 130m. The contribution [11-14-0801] simulated transmission robustness at different CP lengths, and concludes that short CP length does not secure the robustness for outdoor cases. The longer CP is needed to improve the rubustness of transmission in the outdoor deployment case. But the legacy non-HT PPDU would not be able to provide longer CP length. For improving signal robustment in outdoor scenario (i.g., as using longer CP), the HE Beacon transmission should be in the spec.  |
| 16091 | 376.24 | 27.16.5 | ER beacons don't work for the same reason they didn't work with STBC (and got obsoleted): the AP typically has higher tx power so the AP can reach STAs but STAs can't reach the AP. The slight advantage conferred by the ability of the STA to use 10 MHz transmissions is not sufficient to overcome this | Delete Subclause 27.16.5 | Rejected- In 802.11ax PAR, it requires to support the use case of outdoor deployment and improve robustness transmission in outdoor propagation environments. 802.11ax simulation scenario [11-14-0980-16] defines the simulation and evalution cases for outdoor in the case 4 and 4a with coverage of inter-AP space 130m. The contribution [11-14-0801] simulated transmission robustness at different CP lengths, and concludes that short CP length does not secure the robustness for outdoor cases. The longer CP is needed to improve the rubustness of transmission in the outdoor deployment case. But the legacy non-HT PPDU would not be able to provide longer CP length. For improving signal robustment in outdoor scenario (i.g., as using longer CP), the HE Beacon transmission should be in the spec.  |
| 16925 | 376.24 | 27.16.5 | Dual-beacon (STBC beacon) was removed from the IEEE-2016 specification. Now 11ax is adding back dual-beacon (HE ER). I think we know that the industry won't build this feature due to the fact that sending this kind of beacon will encourage devices to use slow data rates thus lowering efficiency, both in-BSS efficiency and multi-BSS efficiency. | Remove this "feature" | Rejected- In 802.11ax PAR, it requires to support the use case of outdoor deployment and improve robustness transmission in outdoor propagation environments. 802.11ax simulation scenario [11-14-0980-16] defines the simulation and evalution cases for outdoor in the case 4 and 4a with coverage of inter-AP space 130m. The contribution [11-14-0801] simulated transmission robustness at different CP lengths, and concludes that short CP length does not secure the robustness for outdoor cases. The longer CP is needed to improve the rubustness of transmission in the outdoor deployment case. But the legacy non-HT PPDU would not be able to provide longer CP length. For improving signal robustment in outdoor scenario (i.g., as using longer CP), the HE Beacon transmission should be in the spec.  |
| 16152 | 376.27 | 27.16.5 | "in P20" is not a defined term | Change "high frequency 106-tone RU in P20" to "the higher frequency 106-tone RU of the primary 20 MHz channel" | Revised- Agree in principle. TGax editor makes changes as shown in the as specified in 11-18/1506r2. |
| 15127 | 376.30 | 27.16.5 | Current spec language suggests that an ER BSS is always co-located with a non-HT BSS.Does it need to be? | Clarify that a stand-alone ER BSS is permitted. | Rejected- Current spec language does not say that an ER BSS is always co-located with a non-HT BSS.A stand-alone ER BSS is permitted. |

***TGax Editor: Change the subclause 27.17.5 as follows: (#16152)***

**27.17.5 ER beacon generation in an ER BSS**

An ER Beacon frame is a Beacon frame carried in HE ER SU PPDU (242-tone RU or high frequency 106- tone RU ~~in P20~~ within the primary 20 MHz channel (#16152)) format to provide additional link budget of downlink transmission to compensate the link budget imbalance between downlink and uplink due to introduction of UL OFDMA transmission. An HE AP may operate an ER BSS in addition to a non-ER BSS operated by another collocated AP. An ER BSS, if(#15453) present, shall operate independently(#16623) of the collocated non-ER BSS and the AP operating the ER BSS shall have a BSSID different from the AP operating the non-ER BSS.(#16160, #16161)