**IEEE P802.11
Wireless LANs**

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| CC 50 CR for Dynamic Power Save Mode Update |
| Date: 2025-07-20 |
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Abstract

This submission proposes resolutions for multiple comments related to TGbn 0.1 with the following CIDs (5 CIDs):

* 2093, 2121, 2124, 2129, 2131,

SP 1: Do you agree to the resolutions provided in doc 11-25/1255r0 for the following CIDs for inclusion in the latest 11bn draft?

2093, 2121, 2124, 2129, 2131

Result: Yes/No/Abstain

Revisions:

* Rev 0: Initial version of the document.

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 subsequent TGbe Draft. This introduction is not part of the adopted material.

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

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 2093 | Vishnu Ratnam | 9.4.2.aa1 | 58.53 | Most DPS Parameters don't need to be carried in every UHR Operation element transmitted in Beacon. It is sufficient to only carry indication of some DPS parameters, for e.g., DPS Enabled bit, in UHR Operation Information element. Thus, the location of DPS Operation Parameters needs further consideration on (i) whether it is included in UHR Operation element or elsewhere or (ii) when it is included in the transmissions by the AP. | The commenter will bring a contribution to resolve the issue. | REVISEDAgreed in principle.TGbn editor to make the changes shown in 25/1255r0 under all headings that include CID 2124. |
| 2121 | Vishnu Ratnam | 37.9.1 | 76.62 | The spec needs to define the mechanism for a non-AP to enable/disable DPS operation or update its DPS parameters. | As in comment. | REVISEDAgreed in principle.TGbn editor to make the changes shown in 25/1255r0 under all headings that include CID 2121. |
| 2124 | Vishnu Ratnam | 37.9.1 | 77.19 | The spec needs to define the mechanism for a mobile AP to enable/disable DPS operation or update its DPS parameters. | The commentor will bring a contribution to resolve the issue. | REVISEDAgreed in principle.TGbn editor to make the changes shown in 25/1255r0 under all headings that include CID 2124. |
| 2129 | Vishnu Ratnam | 37.9.1 | 77.45 | The spec needs to define the mechanism for the end of transmission to a DPS STA in the high capability mode, and the applicable medium synchronization conditions if any. | The commenter will bring a contribution to resolve the issue. | REVISEDAgreed in principle.TGbn editor to make the changes shown in 25/1255r0 under all headings that include CID 2129. |
| 2131 | Vishnu Ratnam | 37.9.1 | 77.45 | DPS enable/disable operation at mobile AP is expected to be slow. So the spec needs to provide a mechanism for a mobile AP operating in DPS mode to operate in the high power mode for an extended duration without disabling DPS mode. | The commentor will bring a contribution to resolve the issue. | REJECTEDThe commenter brought a contribution to resolve the issue but the group could not reach consensus on this topic. |

***TGbn editor: Please note that the baseline for the changes in this document is 802.11bn D0.3.***

***TGbn editor: Please add the following subclause (9.4.2.xx1 (UHR Mode Change element))***

**9.4.2.xx1 UHR Mode Change element**

(#2124)The format of the UHR Mode Change element is as shown in Fig. 9-yy0 (UHR Mode Change element format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | UHR Mode Notification List |
| Bits: | 1 | 1 | 1 | variable |

Figure 9-yy0 (UHR Mode Change element format)

(#2124)The UHR Mode Notification List contains one or more UHR Mode Notification fields.

(#2124)The format of the UHR Mode Notification field is shown in Figure 9--yy1(UHR Mode Notification field format)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mode ID | Length | UHR Mode Parameters |
| Bits: | TBD | TBD | variable |

Figure 9-yy1 (UHR Mode Notification field format)(#2124)The Mode ID field indicates the UHR mode of operation that is requested to be enabled, disabled, or updated using this field. The encoding of the Mode ID field is shown in Table 9-zzz.

Table 9-zzz (Mode ID field values of UHR Mode Notification field)

|  |  |  |
| --- | --- | --- |
| Mode ID value | Applicable UHR mode | Content of UHR Mode Parameters field |
| 0 | DPS (see 37.15.1 (Dynamic power save (DPS) operation)) | DPS-variant UHR Mode Parameters field (see 9.4.1.85 (DPS-variant UHR Mode Parameters field)) |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7-TBD |  |  |

(#2124)The Length field indicates the length of the UHR Mode Notification field in octets.

(#2124)The UHR Mode Parameters field indicates the parameters associated with the mode identified by the Mode ID field. The content of this field for different Mode ID field values is shown in Table 9-zzz.

***TGbn editor: Please replace subclause 9.4.1.85 (DPS Operation Parameters field) with the following subclause (9.4.1.85 (DPS-variant UHR Mode Parameters field)) and move current content of clause 9.4.1.85 (DPS Operation Parameters field) to after the new proposed text.***

**9.4.1.85 DPS-variant UHR Mode Parameters field**

(#2124)The DPS-variant UHR Mode Parameters field indicates parameters associated with the enablement, disablement or update of the DPS mode (see 37.15.1 (Dynamic power save (DPS) operation)). The format of the DPS-variant UHR Mode Parameters field is shown in Figure 9-yy2 (DPS-variant UHR Mode Parameters field format).

|  |  |  |
| --- | --- | --- |
|  | DPS Mode Control | DPS Operation Parameters  |
| Bits: | 8 | 0 or x |

Figure 9-yy2—DPS-variant UHR Mode Parameters field format

(#2124)The format of the DPS Mode Control field is shown in Figure 9-yy3 (DPS Mode Control field format)

|  |  |  |  |
| --- | --- | --- | --- |
|  | DPS Mode | Update Time | Reserved |
| Bits: | 2 | 4 | 2 |

Figure 9-yy3 (DPS Mode Control field format)

(#2124)The DPS Mode field indicates if the DPS mode is being enabled/disabled and the type of DPS mode being enabled by the transmitting STA. The DPS Mode field is set as follows:

* Set to 0 to indicate DPS mode is being disabled.
* Set to 1 to indicate DPS mode is being enabled, with the STA operating in default DPS mode (see 37.15.1 (Dynamic power save (DPS) operation)).
* Set to 2 to indicate DPS mode is being enabled, with the STA operating in parameterized DPS mode (see 37.15.1 (Dynamic power save (DPS) operation)).
* The value of 3 is reserved.

(#2124)The Update Time field, when transmitted by an AP, indicates the TBTT at which the updates to DPS mode, indicated in the DPS Operation Parameters, take effect. The field is set to a value of $i$ if the DPS mode update is scheduled to occur at the TBTT of the $i$-th Beacon frame that follows the transmission of the DPS Operation Parameters field. The Update Time field is set to 0 when carried in a DPS Mode Control field that is transmitted after the scheduled start time of the indicated DPS update.

(#2124)The Update Time field is reserved when the DPS Mode Control field is transmitted by a non-AP STA.

(#2124)The DPS Operation Parameters field is present when the DPS Mode field is set to 1 or 2; otherwise, the DPS Operation Parameters field is not present . When present, then the DPS Operation Parameters field indicates the updated DPS mode parameters.

**TGbn Editor: *Please move the text from the current clause 9.4.1.85 (DPS Operation Parameters field) to here.***

**37.15.1 Dynamic power save (DPS) operation**

**TGbn editor: *Please insert the following sub-clause title***

**37.15.1.1 General**

**TGbn Editor: *Please modify this subclause as the follows***

A UHR non-AP STA that has dot11UHRDPSAssistingSupported equal to 1 is called a DPS assisting non-AP STA and shall set the DPS Assisting Support field to 1 in the UHR Capabilities element in Management frames that it transmits. A UHR AP that has dot11UHRDPSAssistingSupported equal to 1 is called a DPS Assisting AP and shall set the DPS Assisting Support field to 1 in the UHR Capabilities element in Management frames that it transmits. Otherwise the UHR AP or non-AP STA shall set the DPS Assisting Support subfield to 0. A DPS assisting STA is either a DPS assisting non-AP STA or a DPS assisting AP.

(#2120)A UHR STA that has dot11UHRDPSSupported equal to 1 shall set the DPS Support field to 1 in the UHR Capabilities element in Management frames that it transmits. A UHR non-AP STA that has dot11UHRDPSSupported equal to 1 and that has enabled its DPS mode is called a DPS non-AP STA.

(#2124)(#2124)A UHR AP that has dot11UHRDPSSupported equal to 1 and that has enabled its DPS mode is called a DPS AP.

(#2124)

A DPS STA is either a DPS non-AP STA or a DPS AP. It is TBD whether an AP that is not a Mobile AP may be a DPS AP or not.

The DPS operation allows a DPS STA to operate in lower capability (LC) mode and to transition to higher capability (HC) mode upon reception of an ICF [TBD] transmitted by its associated DPS assisting STA. The DPS STA in higher capability (HC) mode transitions back to the LC mode under TBD conditions.

A DPS STA that is in LC mode shall be capable of receiving TBD PPDUs (e.g., with non-HT (duplicate) format using a rate of 6 Mb/s, 12 Mb/s, 24Mb/s[TBD]). A DPS STA that is in HC mode (e.g., operating BW, NSS and MCSs) shall be capable of receiving all supported PPDU formats corresponding to the HC mode.

A DPS assisting STA shall solicit the transition of the peer DPS STA to HC mode by sending an Initial Control frame, which is transmitted in non-HT (duplicate) PPDU using a rate of 6 Mb/s, 12 Mb/s, or 24 Mb/ s [TBD]. The Initial Control frame addressed to the DPS STA shall include an intermediate FCS field if the DPS STA has indicated a non-zero DPS padding delay and shall include sufficient padding to ensure that the padding requirement(s) of the DPS STA(s) that are addressed by that ICF are satisfied as defined in 37.15 (Padding for an Initial Control frame). It is TBD whether a DPS assisting STA shall initiate any frame exchange with a DPS STA by sending an ICF or only some frame exchanges.

**TGbn editor: *Please insert the following clause***

**37.15.1.2** **Dynamic power save (DPS) operation at a non-AP STA**

(#2121)A DPS non-AP STA shall follow the procedures in 37.10.1.1 (General) in addition to the rules specified in this clause.

(#2121)A UHR non-AP STA may enable the DPS mode only if its associated AP is a DPS Assisting AP.

(#2121)To enable DPS mode, update DPS parameters, or disable DPS mode at a first non-AP STA, any non-AP STA affiliated with the same MLD shall transmit a Link Reconfiguration Notify frame and include, in the Per-STA Profile sub-element of the Reconfiguration Multi-link element corresponding to the first STA, a UHR Mode Notification field with the Mode ID field set to 0 (see 9.4.2.xx1 (UHR Mode Change element)). The UHR Mode Notification field shall include the DPS-variant UHR Mode Parameters field (see 9.4.1.85 (DPS-variant UHR Mode Parameters field)) with the Update Time field set to 0 and the DPS Mode field set as follows:

* + The DPS Mode field shall be set to 0 to disable DPS mode.
	+ The DPS Mode field shall be set to 1 to enable Basic DPS mode.
	+ The DPS Mode field shall be set to 2 to enable Parameterized DPS mode.

(#2121)When the DPS Mode field is set to either 1 or 2, the DPS Operation Parameters field shall indicate the new requested parameters of the DPS mode. The DPS Operation Parameters field is not present when the DPS Mode field is set to 0.

(#2121)Upon receiving the Link Reconfiguration Notify frame from an associated non-AP STA to enable DPS mode, the AP shall respond with a Link Reconfiguration Response frame to the non-AP STA, after the AP is ready to serve the non-AP STA in the updated mode.

**TGbn editor: *Please insert the following clause***

**37.15.1.3** **Dynamic power save (DPS) operation at an AP (#2124)**

(#2124)A DPS AP or an AP enabling DPS operation shall follow the procedures in 37.15.1.1 (General) in addition to the rules specified in this clause.

(#2124)An AP may enable its DPS mode only under TBD conditions.

(#2124)To enable DPS mode, update DPS parameters, or disable DPS mode, at an AP of an AP MLD, each AP of the AP MLD shall perform all of the following:

* Include a Reconfiguration Multi-link element in the Beacon, Probe Response and Association Response frames it transmits.
* Include in the Reconfiguration Multi-link element a UHR Mode Notification field with the Mode ID field set to 0 in the Per STA Profile sub-element of the corresponding to the AP for which the DPS mode change is applicable.
* Set the DPS Mode field of the DPS Mode Notification field to indicate the DPS mode change.
* Set the Update Time field of the DPS Mode Notification field to indicate the number of remaining TBTTs after which DPS mode or parameters will be updated.
* Indicate the DPS parameters applicable at the update time in the DPS Operation Parameters field of the DPS Mode Notification field.

(#2124)Each AP of the AP MLD should carry the indication of the mode update in the Reconfiguration Multi-link element of Beacon, Probe Response and Association Response frames for a TBD period of time before the update is applicable, to allow associated STAs in PS mode to receive the notification.

(#2124)While DPS mode is enabled at an AP of an AP MLD, each AP of the AP MLD shall:

* Include a Reconfiguration Multi-link element in Probe Response and Association Response frames it transmits.
* Include in the Reconfiguration Multi-link element a UHR Mode Notification field with the Mode ID field set to 0 in the Per STA Profile sub-element of the corresponding to the AP for which the DPS mode is enabled.
* Set the DPS Mode field of the DPS Mode Notification field to indicate the type of DPS mode enabled.
* Set the Update Time field of the DPS Mode Notification field to 0.
* Indicate the applicable DPS parameters in the DPS Operation Parameters field of the DPS Mode Notification field.
* Set the DPS Enabled field of the UHR Operation element it transits to 1, if the DPS mode is enabled at the transmitting AP. Otherwise the AP shall set the DPS Enabled field to 0.

(#2125)The mechanism for maintaining compatibility with legacy STAs when an AP enables DPS mode is TBD.

(#2129)A DPS non-AP STA that initiates a frame exchange with a DPS AP and that expects the AP to transition from HC mode to LC mode at the end of the frame exchange shall terminate the frame exchange such that there is sufficient time for the AP to send any applicable response frame and complete the mode transition before the NAV end time of the TXOP.