IEEE P802.11  
Wireless LANs

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| Comment resolutions for 4.3.15b and Annex B | | | | |
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Abstract

This submission proposes resolutions for multiple comments related to TGba D4.0 with the following CIDs:

4084, 4085, 4086, 4088, 4089, 4107, 4108, 4125, 4130, 4020, 4015, 4090, 4091, 4092, 4126, 4127

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: modified resolution for CID 4091 based on Rojan’s feedback
* Rev 2: modified resolution for CID 4126 and 4127 based on Xiaofei’s feedback

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 TGba Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **Commenter** | **Clause Number** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 4084 | Robert Stacey | 4.3.15b | 26 | 24 | The distinction between frame support and operational support is not clear. Surely "WUR wake-up operation" can be more clearly broken down so that so that a subset of the operation is mandatory. Support for specific frame types would then be part of that distinction. | Call the set of mandatory requirements "WUR basic wake-up operation". Identify the AP and non-AP STA requirements for "basic" operation. Identify one or more enhanced modes of operation. For example, group wake-up operation and short wake-up operation. | Rejected.  The operational support and the frame support is separated listed as follows: The support of the WUR wake-up operation is a mandatory main feature. The reception of an individually addressed FL WUR Wake-up frame is also listed as a mandatory feature. |
| 4085 | Robert Stacey | 4.3.15b | 26 | 39 | It is the whole mechanism that is optional, not just the reception of a protected WUR frame. | The whole mechanism seems to be referred to as "WUR frame protection", so...  At 26.39 and 26.11 change to "Support for WUR frame protection"  Change the title of 29.10 to "WUR frame protection"  In Table 9-322 bit 5, change the Information cell to "WUR Frame Protection Support" and the Notes cell to "Set to 1 if dot11RSNAWURFrameProtectionActivated is true; otherwise set to 0" | Revised.  Agree in principle.  **Instruction to TGba editor**:  Change P26L11 “Transmission of a protected WUR frame” to “Support for WUR frame protection”.  Change P26L39 “Reception of a protected WUR frame” to “Support for WUR frame protection”  Change the title of subclause 29.10 to “WUR frame protection”  Since the Information cell in Table 9-322 bit 5 is following the naming used in bit 4, no change required. |
| 4086 | Robert Stacey | 4.3.15b | 26 | 29 | Reception of a WUR Beacon frame by itself is useless. It is the synchronization operation that is useful. | At 26.29, change to "Synchronization using WUR Beacon frame"  At 26.4, change to "WUR Beacon frame generation" (the name of the AP operation including the timing operations, etc.))  Change the title of 29.6 to "Synchronization using WUR Beacon frame"  Change the title of 29.6.2 to "WUR Beacon frame generation" | Accepted. |
| 4088 | Robert Stacey | 4.3.15b | 26 | 43 | Reception of a WUR Discovery frame by itself is useless unless it does something as a result of the reception | Change 26.45 and 26.16 to "Support for WUR discovery"  Change the title of 29.12 to "WUR discovery" (lower case "d") | Revised.  Agree in principle.  **Instruction to TGba editor**:  Change P26L16 “Transmission of a WUR Discovery frame” to “Support for WUR discovery”  Change P26L43 “Reception of a WUR Discovery frame” to “Support for WUR discovery”  Change the title of 29.12 to "WUR discovery" (lower case "d") |
| 4089 | Robert Stacey | 4.3.15b | 26 | 45 | Support for the WUR Vendor Specific frame is not defined for a WUR STA. A WUR STA is something that transmits a WUR Capabilities element and there is nothing in the capabilites element or in Clause 29 that even mentions this frame. If it is implemented, it would need vendor specific capability signalling and it is not clear that the vendor would even require basic WUR support (i.e., the device might not be a WUR STA). | Delete statements at 26.45 and 26.17 | Accepted. |
| 4107 | Stephen McCann | 4.3.15b | 25 | 16 | The phrase "A WUR non-AP STA is a non-HT, HT, VHT, or HE non-AP STA" appears to mean "A WUR non-AP STA is a non-AP STA", as every specific type of non-AP STA is included in this statement. | Change the text "A WUR non-AP STA is a non-HT, HT, VHT, or HE non-AP STA that is capable of receiving WUR PPDUs and supports the WUR operation" to "A WUR non-AP STA is capable of receiving WUR PPDUs and supports the WUR operation" | Rejected.  A WUR non-AP STA does not include S1G, DMG, or EDMG non-AP STA. Therefore the cited phrase does not include every specific type of non-AP STA. |
| 4108 | Stephen McCann | 4.3.15b | 25 | 21 | The phrase "A WUR AP is a non-HT, HT, VHT, or HE AP" appears to mean "A WUR AP is an AP", as every specific type of AP is included in this statement. | Change the text "A WUR AP is a non-HT, HT, VHT, or HE AP that is capable of transmitting WUR PPDUs and supports the WUR operation." to "A WUR AP is capable of transmitting WUR PPDUs and supports the WUR operation." | Rejected.  A WUR AP does not include S1G, DMG, or EDMG AP. Therefore the cited phrase does not include every specific type of AP. |
| 4125 | Xiaofei Wang | 4.3.15b | 25 | 24 | The sentence "A WUR PPDU carries a WUR frame" is not correct. Since a WUR AP can transmit a a WUR PPDU to a number of STAs, a WUR PPDU can contain a number of WUR frames. | change to "A WUR PPDU carriers one or more WUR frames." | Accepted. |
| 4130 | Yonggang Fang | 4.3.15b | 25 | 17 | Please clarify why to specify the power consumption of WUR STA less than 1 miniwatt? It is better to use "at very low power consumption" instead. | As indicated in the comment | Rejected.  Response to the commenter: The TGba PAR requires the development of a capability of a WUR non-AP STA to receive a WUR PPDU at the active power consumption less than 1 milliwatt. The suggested “at very low power consumption” is subjective and cannot describe how low the power consumption of WUR non-AP STA supports. |
| 4020 | Bo Sun | 4.3.1 | 25 | 17 | The performance statement of the power consumption less than 1mW of a WUR non-AP STA is not testable and it's not listed as one PICS item. Therefore it should not be specified. | Remove the sentence or change to "..receive a WUR PPDU at a very low power consumption." | Rejected.  Response to the commenter: The TGba PAR requires the development of a capability of a WUR non-AP STA to receive a WUR PPDU at the active power consumption less than 1 milliwatt. The suggested “at a very low power consumption” is subjective and cannot describe how low the power consumption of WUR non-AP STA supports. |
| 4015 | Albert Petrick | Annex B | 171 | 14 | Missing PICS entries for 40 MHz 2.4 GHz band 40MHz and 80 MHz WUR FDMA 5 GHz band. PICS entries should be simular to e.g., 11ax. | Add the following PICs  IUT configuration CFWUR2G420 - WUR operation in the 2.4 GHz band capable of 20 MHz channel width. CFWUR2G440 - WUR operation in the 2.4 GHz band capable of 40 MHz channel width.  CFWUR5G40 - WUR operation in the 5 GHz band capable of 40 MHz channel width. CFWUR5G80 - WUR operation in the 5GHz band capable of 80 MHz channel width. | Revised.  Agree with the commenter that the PICS entries on 2.4 GHz band support and 5 GHz band support is missing. The 20 MHz support is already indicated by the entry WURP2.1 (WUR PPDU with 20 MHz channel width, LDR, and single stream) and the 40 and 80 MHz support is also indicated by the entry WURP3 (WUR FDMA PPDU).  TGba editor to make the changes proposed in doc.: IEEE 802.11-19/1829r2 under all headings that include CID 4015. |
| 4090 | Robert Stacey | B.4.37.1 | 174 | 40 | It is not the signaling that is optional, it is the discovery procedure that is optional | Delete row since it is covered in WURM12 (I like the sound of that "worm 12") | Accepted. |
| 4091 | Robert Stacey | B.4.4.2 | 172 | 37 | Does not fully capture the mandatory/optional requirements. FL WUR Wake-p frame is mandatory, but VL WUR Wake-up frame is optional | Add separate entries for the two frame types. | Revised.  Agree in principle. The entry is separated: Individually addressed and broadcast addressed FL WUR Wake-up frame (M), FL WUR Wake-up frame with WUR group ID (O), and VL WUR Wake-up frame (O).  TGba editor to make the changes proposed in doc.: IEEE 802.11-19/1829r2 under all headings that include CID 4091. Give the editor permission to reorder the entries. |
| 4092 | Robert Stacey | B.4.37.1 | 175 | 6 | MAC features missing a statement about wake-up operation with group ID | Give the group wake-up stuff a name and reference it in the PICS. | Revised.  Agree in principle. The entry for the wake-up operation with group ID is added.  TGba editor to make the changes proposed in doc.: IEEE 802.11-19/1829r2 under all headings that include CID 4092. |
| 4126 | Xiaofei Wang | B4.4.2 | 172 | 22 | Transmission of "Wur short wake-up frame" is missing in B4.4.2 PICS | add transmission of "WUR Short wake up frame" to PICS | Revised.  Agree in principle. The entry for the WUR Short wake-up frame transmission is added.  TGba editor to make the changes proposed in doc.: IEEE 802.11-19/1829r2 under all headings that include CID 4126. |
| 4127 | Xiaofei Wang | B4.37.2 | 176 | 16 | PHY feature "HDR" is missing from section 4.37.2 PCIS | add description for HDR phy feature | Revised.  Agree in principle. The entry for the HDR is added in the WUR PPDU format.  TGba editor to make the changes proposed in doc.: IEEE 802.11-19/1829r2 under all headings that include CID 4127. Give the editor permission to reorder the entries. |

**TGba Editor: *Change the subclauses below in TGba Draft 4.0 as follows: (#4015, 4091)***

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| --- | --- | --- | --- | --- |
| * IUT configuration | | | | |
| Item | IUT configuration | References | Status | Support |
|  | What is the configuration of the IUT? |  |  |  |
| … |  |  |  |  |
| \* CFOFDM | Orthogonal frequency division multiplexing (OFDM) PHY | — | O.2  CFHT5G:M  CFTVHT:M  CFS1G:M(11ah)  CFWUR:M | Yes  No  |
| … |  |  |  |  |
| \*CFWUR | Wake-up Radio features | 9.4.2.273 (WUR Capabilities element) | O | Yes  No  N/A  |
| \*CFWUR2G4 (#4015) | WUR operation in the 2.4 GHz band | Clause 30 (Wake-up Radio (WUR) PHY specification) | CFWUR:O | Yes  No  N/A  |
| \*CFWUR5G (#4015) | WUR operation in the 5 GHz band | Clause 30 (Wake-up Radio (WUR) PHY specification) | CFWUR:O | Yes  No  N/A  |

**TGba Editor: *Change the subclauses below in TGba Draft 4.0 as follows: (#4091)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * MAC frames | | | | |
| Item | MAC frame | References | Status | Support |
|  | Is transmission of the following MAC frames supported? | 9 (Frame formats) |  |  |
| ... |  |  |  |  |
| FT<Last\_assigned+2> | Individually addressed and broadcast addressed FL WUR Wake-up frame (#4091) | 9.10.3.2 (WUR Wake-up frame format) | (CFWUR AND CFAP):M | Yes  No  N/A  |

**TGba Editor: *Insert the following entry after the above entry FT<Last\_assigned+2> in the subclauses B4.4.2 MAC frames in TGba Draft 4.0: (#4091)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FT<Last\_assigned+8> (#4091) | FL WUR Wake-up frame with a WUR group ID | 9.10.3.2 (WUR Wake-up frame format) | (CFWUR AND CFAP):O | Yes  No  N/A  |
| FT<Last\_assigned+9> (#4091) | VL WUR Wake-up frame | 9.10.3.2 (WUR Wake-up frame format) | (CFWUR AND CFAP):O | Yes  No  N/A  |

**TGba Editor: *Change the following entry in the subclauses B4.4.2 MAC frames in TGba Draft 4.0: (#4091)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | MAC frame | References | Status | Support |
|  | Is reception of the following MAC frames supported? | 9 (Frame formats) |  |  |
| ... |  |  |  |  |
| FR<Last\_assigned+2> | Individually addressed and broadcast addressed FL WUR Wake-up frame (#4091) | 9.10.3.2 (WUR Wake-up frame format) | (CFWUR AND CFSTAofAP):M | Yes  No  N/A  |

**TGba Editor: *Insert the following entry after the above entry FR<Last\_assigned+2> in the subclauses B4.4.2 MAC frames in TGba Draft 4.0: (#4091, 4126)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FR<Last\_assigned+8> (#4091) | FL WUR Wake-up frame with a WUR group ID | 9.10.3.2 (WUR Wake-up frame format) | (CFWUR AND CFSTAofAP):O | Yes  No  N/A  |
| FR<Last\_assigned+9> (#4091) | VL WUR Wake-up frame | 9.10.3.2 (WUR Wake-up frame format) | (CFWUR AND CFSTAofAP):O | Yes  No  N/A  |
| FR<Last\_assigned+10> (#4126) | WUR Short Wake-up frame | 9.10.3.5  (WUR Short  Wake-up  frame format) | (CFWUR AND CFSTAofAP):O | Yes  No  N/A  |

**TGba Editor: *Insert the following entry WURM9.1 after WURM9 in the subclauses B4.37.1 WUR MAC features in TGba Draft 4.0: (#4092)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * WUR MAC features | | | | |
| Item | Protocol capability | References | Status | Support |
|  | Are the following MAC protocol features supported? |  |  |  |
| … |  |  |  |  |
| WURM9 | Wake-up operation | 29.9 (Wake-up operation) | CFWUR:M | Yes  No  N/A  |
| WURM9.1 (#4092) | Wake-up operation with a WUR Wake-up frame with a WUR group ID | 29.9 (Wake-up operation) | CFWUR:O | Yes  No  N/A  |

**TGba Editor: *Insert the following entry WURP2.4 under WURP2 in the subclauses B4.37.2 WUR PHY features in TGba Draft 4.0: (#4127)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * WUR PHY features | | | | |
| Item | Protocol capability | References | Status | Support |
|  | Are the following PHY protocol features supported? |  |  |  |
| … |  |  |  |  |
| WURP2 | WUR PPDU format |  |  |  |
| WURP2.1 | WUR PPDU with 20 MHz channel width, LDR, and single stream | 30.1 (Introduction), 30.3.2 (WUR Basic PPDU format) | CFWUR:M | Yes  No  N/A  |
| WURP2.2 | WUR preamble | 30.3.9 (WUR preamble) | CFWUR:M | Yes  No  N/A  |
| WURP2.3 | WUR-Data field | 30.3.10 (WUR-Data field) | CFWUR:M | Yes  No  N/A  |
| WURP2.4 (#4127) | WUR PPDU with HDR | 30.1 (Introduction), 30.3.2 (WUR Basic PPDU format) | (CFWUR AND CFAP):M  (CFWUR AND CFSTAofAP):O | Yes  No  N/A  |