### IEEE P802.11Wireless LANs

|  |
| --- |
| 11ba D4.0 MAC Comment Resolution for Miscellaneous  |
| Date: 2019-10-28 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Po-Kai Huang | Intel Corporation | 2200 Mission College Blvd, Santa Clara, CA 950542200  |  | po-kai.huang@intel.com |
|  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes resolutions for comments of TGba Draft D4.0 with the following CIDs:

4016, 4050, 4044, 4045, 4046, 4049, 4042, 4047, 4048

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 TGba D4.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGba D4.0 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.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 4050 | Joseph Levy | 122.3 | 29.9.3 | The STA must not be in the WUR mode if it is to follow existing operations, as a STA in the WUR mode can only receive WUR PPDUs. | Replace: "A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individually addressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation. In this case, the WUR non-AP STA may be in the doze state (see 11.2.1 (General)) until the time indicated by the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation."With: "A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individually addressed BU(s) (see 29.9.1 (General)) shall leave WUR mode and follow existing operation, which is any PS operation the associated WUR non-AP STA and the WUR AP has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation. In this case, the WUR non-AP STA may be in the doze state (see 11.2.1 (General)) until the time indicated by the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation. If the WUR non-AP STA and the WUR AP are not in PS mode, the WUR non-AP STA shall leave the WUR mode and be in the active mode." | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.* |
| 4044 | Joseph Levy | 109.60 | 29.6.1 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. Also WUR mode is defined as the state in which the non-AP STA can only receive WUR PPDUs. | Delegate "and Doze state (see 11.2.1 (General))"And clarify that the STA is transitioning out of the WUR mode by replacing "... or transition to awake state (see 11.2.1 (General))." With "... or transition out of the WUR mode to awake state (see 11.2.1 (General)). | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because WUR scanning is only useful if WUR non-AP STA is in doze state. If the WUR non-AP STA is in awake state, usage of WUR scanning is implementation specific and scanning for non-WUR PPDU will be used anyway. |
| 4045 | Joseph Levy | 111.65 | 29.7 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. | Replace "doze state (see 11.2.1 (General))" with "WUR mode" | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because receiving WUR PPDU in awake state is a behaviour that does not provide any benefit, and may not be doable for a implementation.  |
| 4046 | Joseph Levy | 113.15 | 29.7 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. | Replace: "If a WUR non-AP STA is in WUR mode, and the WUR non-AP STA is in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state within the on duration of a WUR duty cycle period."With: "If a WUR non-AP STA is in WUR mode it shall be in the WUR awake state within the on duration of a WUR duty cycle period." | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because receiving WUR PPDU in awake state is a behaviour that does not provide any benefit, and may not be doable for a implementation. |
| 4049 | Joseph Levy | 120.65 | 29.9.2 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. | Replace "doze state (see 11.2.1 (General))" with "WUR mode" | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because receiving WUR PPDU in awake state is a behaviour that does not provide any benefit, and may not be doable for a implementation. |
| 4042 | Joseph Levy | 60.62 | 9.4.3.297 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. | Replace "doze state" with "WUR mode" | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because receiving WUR PPDU in awake state is a behaviour that does not provide any benefit, and may not be doable for an implementation. |
| 4047 | Joseph Levy | 117.34 | 29.8.3 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. | Replace "doze state (see 11.2.1 (General))" with "WUR mode" | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because receiving WUR PPDU in awake state is a behaviour that does not provide any benefit, and may not be doable for an implementation. |
| 4048 | Joseph Levy | 118.37 | 29.8.4 | Doze state is a defined PS state, that is defined as the state in which the "STA is not able to transmit or receive and consumes very low power.) (see 11.2.1) It is note defined as a state in WUR mode and hence should not be used to define WUR mode behavior especially for a state that allows the STA to receive WUR PPDUs. | Replace "doze state (see 11.2.1 (General))" with "WUR mode" | Rejected – Talk offline with the commenter to explain WUR mode. WUR mode is a negotiation status to maintain negotiatied WUR parameter. Leaving WUR mode means that WUR parameters are not maintained. Further explain to the commenter that a simple example to understand WUR concept is the following. In the baseline, say TWT is not used, a non-AP STA regular wake up to check TIM or DTIM to retrieve individual addressed buffered unit and broadcast addressed buffer unit. With WUR, wake-up frame can be sent to indicate individual addressed buffer unit, similar to TIM indication, and broadcast addressed buffer unit indication, similar to DTIM indication, without to wait for regular TBTT to a specific WUR non-AP STA that is in doze state. After that, WUR AP and WUR non-AP STA follow existing power save protocol to deliver and retrieve bufferred unit.  The reference spec texts are provided below. ***29.8.3 WUR power management operation for a WUR AP****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR AP.— A WUR AP shall schedule for transmission a WUR Wake-up frame for the WUR non-AP STAduring an on duration that is negotiated with the WUR non-AP STA to notify the WUR non-APSTA that the WUR AP intends to have operation with the WUR non-AP STA as described in 29.9.2(WUR AP operation) and 29.9.3 (WUR non-AP STA operation) if the WUR non-AP STA is in thedoze state (see 11.2.1 (General)).* ***29.9.2 WUR AP operation****A WUR AP that transmits a WUR Wake-up frame to a WUR non-AP STA that indicates the availability ofindividually addressed BU(s) shall follow the existing operation, which is any PS operation that the WURAP and the WUR non-AP STA has agreed to use (e.g., baseline active mode and PS mode change, U-APSD, TWT, etc.), to deliver individually addressed BU(s) to the WUR non-AP STA.****29.8.4 WUR power management operation for a WUR non-AP STA****If a WUR non-AP STA is in WUR mode, then:— The negotiated WUR parameters between the WUR AP and the WUR non-AP STA are maintainedby the WUR non-AP STA.— If the WUR non-AP STA is considered by the WUR AP to be in the doze state (see 11.2.1 (General)), the WUR power state of the WUR non-AP STA shall be in the WUR awake state during theWUR duty cycle schedule agreed between WUR AP and WUR non-AP STA. Otherwise, the WURpower state of the WUR non-AP STA may be in the WUR doze state.****29.9.3 WUR non-AP STA operation****A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individuallyaddressed BU(s) (see 29.9.1 (General)) shall follow existing operation, which is any PS operation the associated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.*We also note that “doze state” is required here because receiving WUR PPDU in awake state is a behaviour that does not provide any benefit, and may not be doable for an implementation. |
| 4016 | Albert Petrick | 118.13 | 29.8.4 | Clause 29.8.4 describes power management operation for a WUR non-AP STA. Two power states WUR awake and WUR doze are defined based on the references in clause 11.2.1 (REVmd D2.4). Power Save (PS) mode is referenced to clause 11.2.3.2 (non-AP STA power management modes)- REVmd D2.4. The use of state transition diagrams is useful to understand the transition flow in and out of the doze and wake states and should be used to remove any ambiguities in the text. Figures 11-12 and 11-13 in REVmd 2.4 are good examples of transition state diagrams that could be modified to illustrate transitioning for transitioning between WUR awake and doze states. | Use Figures 11-12 and 11-12 from REVmd 2.4 as examples, add transition state diagram that is WUR specific for awake and doze states. | Rejected – We note that Figures 11-12 in D2.4 is created for DMG STA rather than non-DMG STA. We also note that there is no transition diagram of awake/doze state in the baseline, and the comment should be submitted to revmd to have a state diagram for the baseline first so that WUR operation can be referenced to draw the diagram. |

**Discussion:** *None.*